



**Rainer Ernst GLASER**  
Dipl.-Chem., M.S., Ph.D.  
Professor of Chemistry

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(Last Update: March 7, 2024)

## CURRICULUM VITAE

### PERSONAL DATA

**Birth Date** June 18, 1957.

**Family** Julia M. Chang, married Aug. 22, 1996.  
Katharine K. J. Glaser, b. Oct. 7, 1997, Columbia, Missouri.  
James C. Glaser, b. Aug. 12, 2001, Columbia, Missouri.

**Interests** Reading, Astronomy, Cognition, Travel, Badminton, Swimming.

**Languages** Bilingual in English and German. Read French, some Spanish.

**Honors** Fellow of the American Institute of Chemists, since 2022.  
Fellow of the American Chemical Society, since 2021.  
Visiting Professor, Inst. of Chem., Chin. Acad. of Sciences, Beijing, 2013, 2014.  
Guest Professor, Dept. of Chem., Northwest University, Xi'an, 2013-15.  
Fellow of the Royal Society of Chemistry, since 2006.  
Fellow of the American Association for the Advancement of Science, since 2004.  
JSPS Postdoctoral Fellow, Dept. of Chem., Hokkaido University, Sapporo, 1997.  
Fellow of the Fonds der Chemischen Industrie, 1985-7.  
Fulbright Fellow, 1982-3.  
Studienstiftung des Deutschen Volkes, 1981-4.

### CURRENT POSITION & EMPLOYMENT HISTORY

**8/2018-** Full Professor, Dept. of Chem., Missouri University of Science & Technology.

**7/2022-5/2023** Interim Vice-Provost of Graduate Education, Graduate Education, Missouri S&T.

**8/2018-6/2022** Chair, Dept. of Chem., Missouri University of Science & Technology.

**2003-18** Full Professor, Department of Chemistry, University of Missouri-Columbia.

**1995-2003** Associate Professor, Department of Chemistry, Univ. of Missouri-Columbia.

**1989-95** Assistant Professor, Department of Chemistry, Univ. of Missouri-Columbia.

**1987-89** Postdoctoral Research Associate, Department of Chemistry, Yale University.  
Adviser: Professor Kenneth B. Wiberg.

### **SUMMER TEACHING & RESEARCH ENGAGEMENTS**

<b>2017-19</b>	Visiting Professor, Chem. and Chem. Eng., Northwestern Polytechnical University, Xi'an.
<b>2016-19</b>	Visiting Professor, Chem. and Chem. Eng., Univ. of Chin. Academy of Sciences, Beijing.
<b>2015</b>	Visiting Professor, College of Chem. and Chem. Eng., Xiamen University, Xiamen.
<b>2013-18</b>	Visiting Professor, Dept. of Chem., Northwest University, Xi'an.
<b>2010-14</b>	Visiting Professor, Inst. of Chem., Chinese Academy of Sciences, Beijing.
<b>1997</b>	JSPS Postdoctoral Fellow, Dept. of Chemistry, Hokkaido University, Sapporo, Japan.

### **EDUCATION**

<b>1984-87</b>	Ph.D. Program, Department of Chemistry, University of California, Berkeley. Chemistry Ph.D., 1987. Adviser: Professor Andrew Streitwieser, Jr.
<b>1983-84</b>	Eberhard-Karls-Universität Tübingen, Germany. Chemistry Diplom, 1984.
<b>1982-83</b>	University of California, Berkeley, College of Chemistry and Lawrence Berkeley Laboratory (LBL), Mol. and Mat. Research Division. Chemistry Master of Science, 1983. Adviser: Professor Andrew Streitwieser, Jr.
<b>1977-82</b>	Eberhard-Karls-Universität Tübingen, Germany. Chemistry Vordiplom, 1980. Physics Zwischenprüfung, 1979.
<b>1976-77</b>	Military Service, Deutsche Bundeswehr.
<b>1967-76</b>	Kepler-Gymnasium, Freudenstadt, Germany. Abitur with highest honors and Chemistry Prize, 1976.

### **UNIVERSITY SERVICE at MU**

<b>2017-18</b>	Advisory Group Member, Academic Writing in a Second Language (since 03/17)
<b>2016-18</b>	University Faculty Committee on Tenure (Alternate 2016-17)
<b>2016-19</b>	MU Cyberinfrastructure (CI) Council
<b>2014-17</b>	MU Honorary Degrees Committee
<b>2014-16</b>	MU Student Conduct Committee
<b>2013-16</b>	MU Lectures Committee
<b>2013-16</b>	Board Member, MU Campus Writing Program
<b>2011-17</b>	MU Research Responsibility Committee (re-elected 2014)
<b>2008-9</b>	University Faculty Committee on Tenure (Alternate)
<b>2008-11</b>	MU Faculty Development Advisory Committee
<b>2007-10</b>	MU Honorary Degrees Committee
<b>2005-8</b>	UM Research Computing Advisory Group (RCAG)
<b>2004-7</b>	MU Environmental Studies Executive Committee. MUES & SEAS
<b>2003-6</b>	MU College of Arts & Science, Promotion & Tenure Committee, Chair '04-'06
<b>2000-3</b>	MU Academic Grievance Panel
<b>1999-2003</b>	MU Faculty Advisory Council, Educational Technologies at MU
<b>1999-2002</b>	MU Academic Assessment Committee
<b>1996-9</b>	MU Study Abroad Advisory Council
<b>1995-9</b>	MU Task Force for Research Computing

## **PEER REVIEWING ACTIVITIES**

2013-18	Editorial Board Member, <i>Global Education Review</i>
2012-18	Board Member, <i>Reaction Mechanisms Conference</i> , ACS, Div. Org. Chem.
2012-	Editorial Board Member, <i>Crystal Structure Theory and Applications</i>
2011-	Editorial Board Member, <i>Journal of Thermodynamics and Catalysis</i>
2011-16	Honorary Editorial Board Member, <i>Reports in Organic Chemistry</i>
2011-14	Editorial Board Member, <i>Life</i>
2009-	Editorial Board Member, <i>Astrobiology</i>
2009-18	Editorial Board Member, <i>The Icfai University Journal of Chemistry</i>
1998-2002	Advisory Board, <i>Journal of Organic Chemistry</i>
1992-	Boards of Review for 18 Funding Agencies (>300 reviews)
1987-	Boards of Review for >120 Journals (>1000 reviews)

## **PROFESSIONAL ORGANIZATIONS**

Gesellschaft Deutscher Chemiker, since 1980. Liebig-Vereinigung für Organische Chemie, since 1995.  
Wöhler-Vereinigung für Anorganische Chemie, since 1995.

American Chemical Society, since 1982. University of Missouri ACS Local Section, 1995-7, Secretary-Treasurer. Div. of Org. Chem. (ORGN), since 1982. Div. Phys. Chem. (PHYS), since 1993. Theor. Chem. Subdivision, since 1993. Div. Chem. Toxicol. (TOXI), since 2001. Div. Chem. Educ. (CHED), since 2001. Div. of Professional Relations (PROF), since 2019. Ethics Subdivision of PROF, since 2019. Chair-Elect, Ethics Subdivision of the ACS Division of Professional Relations for 2020.

American Association for the Advancement of Science, since 1988. Elected Fellow 2004.

World Association of Theoretically Oriented Chemists, WATOC, since 1997.

## **RESEARCH INTERESTS AND FUNDING (Total: \$6,702,954)**

*From Electronic Structure Theory to New Concepts in Chemistry* is the guiding principle of our research. This principle is applied to studies of *Chemistry in Anisotropic Media*, and all efforts are benefitting from the *Synergy of Tightly Coupled Theoretical and Experimental Studies*. Current projects include:

1. Polar Order in Crystalline Organic Molecular Materials
2. DNA Base Deamination and Cross-Link Formation
3. Catalysis: Olefin Polymerization and Oscillating Chemical Reactions
4. Heteroarene Reduction: Hypoxia Selective Cancer Chemotherapeutics
5. Heterocumulenes: Biomimetic, Reversible CO<sub>2</sub> Sequestration
6. Astrochemistry: Nucleobase Synthesis in Interstellar Space
7. Science Communication: *Chemistry is in the News* and Scientific Writing
8. Cross-Disciplinary Science Education: Mathematics and Life Sciences

Research in Theoretical Chemistry, Organic Chemistry, Materials Chemistry and Chemistry Education has been funded by the National Institutes of Health (NIGMS, NCI), the National Science Foundation (DUE, PRISM, CHE), the Petroleum Research Fund of the American Chemical Society (G, AC, SE, ND), The Camille & Henry Dreyfus Foundation, NATO, the Japan Society for the Promotion of Science, the Chinese Academy of Sciences, Carey Bottom's Science Ethics Support Initiative, and by the University of Missouri System (MU, S&T). Total Funding (not including fellowships and travel grants) \$6,702,954. Research Funding: \$3,762,189 (total), \$2,534,484 (external) and \$1,277,705 (internal). Education Funding: \$2,940,765 (total), \$2,881,265 (external) and \$59,500 (internal). (Funding last updated: March 6, 2024)

## **RESEARCH SUMMARY**

**Research summary** is available online at [https://glaserr.missouri.edu/vitpub/RG\\_Research.html](https://glaserr.missouri.edu/vitpub/RG_Research.html). For a direct link click on [Research](#). (In revision).

## **PUBLICATIONS AND PRESENTATIONS**

**Products** are available online at [https://glaserr.missouri.edu/vitpub/RG\\_Publications.html](https://glaserr.missouri.edu/vitpub/RG_Publications.html). For a direct link click on [Publications](#). The online version includes hyperlinks to associated materials (link to journal article, cover art, tweets, CCDC, SI, PDF, etc. Publications and presentations also are included in the current CV beginning on the following page. The online version features cover art and information in the following categories: A. [Publications](#) (262 published or accepted, 63 involved collaborations, [Impact and Citation Measures](#)) | B. [Patents \(1\)](#) | C. [Books \(2\)](#) | D. [Dissertations: \(a\) directed \(26\), \(b\) committee \(18+\), \(c\) own \(3\)](#) | E. [Invited Conference Presentations \(75\)](#) | F. [Departmental Colloquia and Seminars \(190\)](#) | G. [Contributed Lectures \(154\)](#) | H. [Contributed Poster, Video & Internet Presentations \(169\)](#) | I. [Media Appearances \(170\)](#). (Last Update: March 1, 2024)

## **STUDENTS and COLLABORATORS**

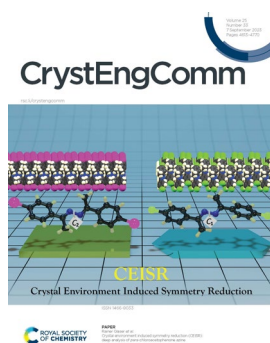
**Research team info** is available online at [https://glaserr.missouri.edu/vitpub/RG\\_Group.html](https://glaserr.missouri.edu/vitpub/RG_Group.html). For a direct link click on [Students & Collaborators](#). The online version includes information in the following categories: A. [Group Facilities](#) | B. [Collaborators: Research and Education](#) | C. [Research Associates & Visiting Professors](#) | D. [Students: Graduate, Post-Baccalaureate, Exchange and Undergraduate](#). (Last Update: Feb. 8, 2024)

## **TEACHING and STEM EDUCATION**

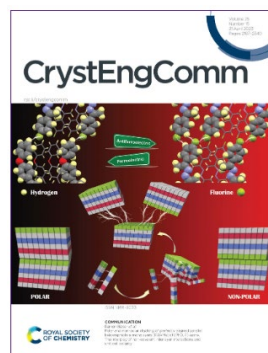
**Teaching scholarship** is documented at [https://glaserr.missouri.edu/vitpub/RG\\_Teaching.html](https://glaserr.missouri.edu/vitpub/RG_Teaching.html). For a direct link click on [Teaching & STEM Education](#). The online documentation includes information in the following categories: A. [Courses by Semester](#) | B. [Courses by Number](#) | C. [Seminars, Group Meetings & Cumes](#) | D. [STEM Education Initiatives and Educational Materials](#) | E. [Mentoring & Advising](#) | F. [Honors: Teaching Awards, Mentorships, & Invitations](#). (Last Update: Jan. 1, 2024)

## **ACADEMIC SERVICE (as faculty)**

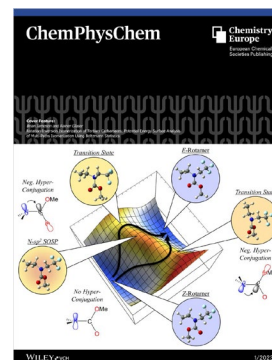
**Service (as faculty)** is documented at [https://glaserr.missouri.edu/vitpub/RG\\_Consulting.html](https://glaserr.missouri.edu/vitpub/RG_Consulting.html). For a direct link click on [Peer Review, Faculty Mentoring, and Consulting](#). The online documentation includes information in the following categories: A. [Peer Review: Manuscripts \(>1000\), Proposals \(>300\), and Educational Materials \(>30\)](#); [PR Service Recognition \(2\)](#) | B. [Service at Conferences: Organization of Symposia, Workshops, and Conferences \(23\)](#) and [Chairing of Symposia \(7\)](#) | C. [Faculty Mentoring: Panel Discussions \(6\), Conference Workshops \(15\), and Leadership Mentoring \(5\)](#) | D. [Consulting](#). (Last Update: March 6, 2024).



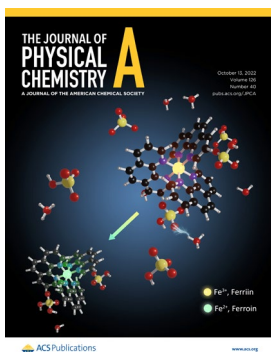
Publ. 262, March 2024



Publ. 253, April 2023



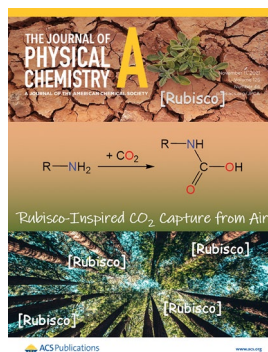
Publ. 241, Fall 2022



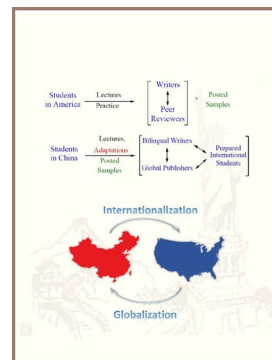
Publ. 240, Fall 2022



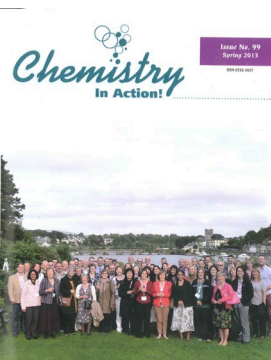
Publ. 239, Fall 2022



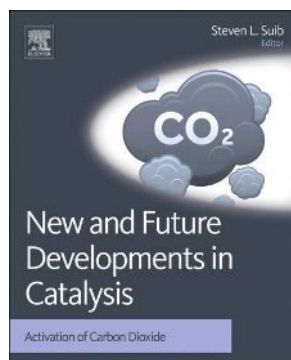
Publ. 227, Fall 2021



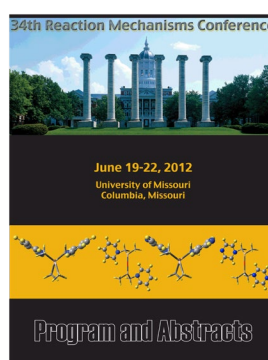
Publ. 194, Fall 2018



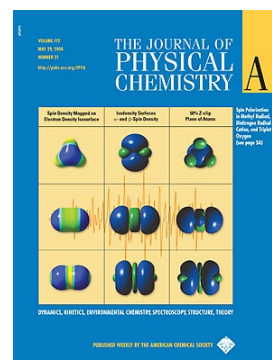
Publ. 163, Spring 2013



Publ. 159, Aug. 2013



RMC2012, June 2012



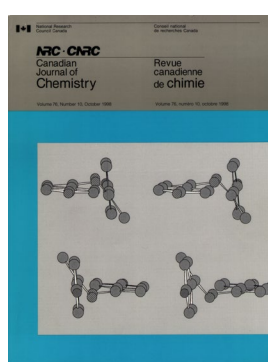
Publ. 144, May 2008



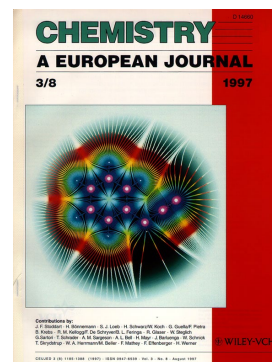
Publ. 139, Jan. 2007



Publ. 137, July 2004



Pub. 71, Oct. 1998



Pub. 64, Aug. 1997



## A. Publications

Visit [https://glaserr.missouri.edu/vitpub/RG\\_Publications.html](https://glaserr.missouri.edu/vitpub/RG_Publications.html) for up-to-date list with direct links to paper via DOI, to PDF version of the paper, to supporting information (SI), and other online resources.

Format for papers and linked items: Cover and Social Media Information, Series association, Genre (other than article), *Title*, Authors, *Journal* **Year**, *Volume*, Pages. DOI. PDF. SI. Publication Timeline. Online resources. Dedication.

Format for CCDC structure depositions: Compound name, Authors, *CSD Communication* **Year**, CCDC number (CCDC name). CCDC DOI (linked to CCDC entry).

Format for older CCDC structure depositions w/o CCDC DOI: CCDC name (linked to CCDC entry), CCDC number, compound name.

262. *Perfect Polar Alignment of Parallel Beloamphiphile Layers: Improved Structural Design Bias Realized in Ferroelectric Crystals of the Novel "Methoxyphenyl Series of Acetophenone Azines"*, Harmeet Bhoday, Nathan Knotts, and Rainer Glaser, *Chemistry - A European Journal* **2024**, 30, xxxx-xxxx. DOI: 10.1002/chem.202400182. PDF. SI. Provisionally accepted: Feb. 28, 2024. Accepted: March 7, 2024.
261. **Isonicotinaldehyde Series: (H,Me,I)-Pyr-AZ: 4-Iodoacetophenone Isonicotinaldehyde Azine**, Christina Castro, Charles L. Barnes, Steven P. Kelley, and Rainer Glaser, *CSD Communication* **2024**, 2328127 (ZOLREB). CCDC DOI: 10.5517/ccdc.csd.cc2j4lw5.
260. **PARALLEL DIPOLE ALIGNMENT - Nathan Knotts's Azine II Series, (Cl-Ph, MeO)-Azine: (E,E)-4-methoxyacetophenone 4'-(4"-chlorophenyl)acetophenone azine**, Nathan Knotts, Harmeet Bhoday, Charles Barnes, Steven Kelley, and Rainer Glaser, *CSD Communication* **2024**, 2323131 (DOFPOH). CCDC DOI: 10.5517/ccdc.csd.cc2hzdqm.
259. **(MeO,X)-Butadiene Series -- (MeO,I) Dipole Parallel-Aligned: 1-(4-methoxyphenyl)-4-(4-iodophenyl)-(1E,3E)-buta-1,3-diene**, Justin Nulsen, Harmeet Bhoday, Stephen P. Kelley, and Rainer Glaser, *CSD Communication* **2023**, 2310884 (HIWBAU). CCDC DOI: 10.5517/ccdc.csd.cc2hknnd.
258. **(MeO,X)-Butadiene Series -- (MeO,Cl) Dipole Parallel-Aligned: 1-(4-methoxyphenyl)-4-(4-chlorophenyl)-(1E,3E)-buta-1,3-diene**, Justin Nulsen, Harmeet Bhoday, Stephen P. Kelley, and Rainer Glaser, *CSD Communication* **2023**, 2310885 (HIWBey). CCDC DOI: 10.5517/ccdc.csd.cc2hknpf. The original 2019 submission (ZOBNAI, entry #200) suggested a disordered structure (ZIP).
257. **(MeO,X)-Butadiene Series -- (MeO,F) Dipole Parallel-Aligned: 1-(4-methoxyphenyl)-4-(4-fluorophenyl)-(1E,3E)-buta-1,3-diene**, Kaidi Yang, Nicohl Corretjer, Sarah Gadban, Stephen P. Kelley, Rainer Glaser, Melanie M. Kozak, and Bruce A. Hathaway, *CSD Communication* **2023**, 2294067 (PIQNEM). CCDC DOI: 10.5517/ccdc.csd.cc2h055w. The original 2018 submission (RINWOD, entry #197) suggested a disordered structure (ZIP).
256. Cover Feature of the Sept. 7, 2023 Issue. View the Journal's Tweet. View our Tweet1 and Tweet2. *Crystal Environment Induced Symmetry Reduction (CEISR): Deep Analysis of Para-Chloroacetophenone Azine and Generalization*, Harmeet Bhoday, Kaidi Yang, Steven Kelley, and Rainer Glaser, *CrystEngComm* **2023**, 25, 4638-4657. DOI: <https://doi.org/10.1039/>. PDF. SI. Provisionally accepted: July 20, 2023. Accepted: July 27, 2023. Published: Aug. 10, 2023.

255. View the Journal's Tweet. View our Tweet1 and Tweet2. *NMR Study of CO<sub>2</sub> Capture by Fluoroalkyl-amines: Ammonium Ion pK<sub>a</sub> Depression via Fluorine Modification and Thermochemistry of Carbamylation*, Brian Jameson, Kari Knobbe, and Rainer Glaser, *J. Org. Chem.* **2023**, 88, 11434-11544. DOI: <https://doi.org/>. PDF. SI. Accepted: July 22, 2023. Published: Aug. 2, 2023.
254. **KDDE Complexation Studies**: *Tris(aqua-(bis(2-picolyl)amine-N,N',N'')-magnesium(II) dichloride*, Brian Jameson, Emilie Overschmidt, Steven S. Kelley, and Rainer Glaser, *CSD Communication* **2023**, 2256962 (BILPEV). CCDC DOI: 10.5517/ccdc.csd.cc2frk70.
253. Cover Feature of the April 21, 2023 Issue. View the Journal's Tweet. View our Tweet. *Polar and non-polar stacking of perfectly aligned parallel beloamphiphile monolayers (PBAMs) of (PhO, F)-azine. The interplay of non-covalent interlayer interactions and unit cell polarity*, Harmeet Bhoday, Steven Kelley, and Rainer Glaser, *CrystEngComm* **2023**, 25, 2175-2180. DOI: <https://doi.org/10.1039/D3CE00021D>. PDF. SI. Accepted: March 16, 2023. Published: March 27, 2023.
252. View our Tweet1 and Tweet2. *NMR Study of CO<sub>2</sub> Capture by Butylamine and Oligopeptide KDDE in Aqueous Solution. Capture Efficiency and Gibbs Free Energy of the Capture Reaction as a Function of pH*, Kaidi Yang, Joseph Schell, Fabio Gallazzi, Wei Wycoff, and Rainer Glaser, *ChemPhysChem* **2023**, 24, e202300053 (1 of 14). DOI: <https://doi.org/10.1002/cphc.202300053>. PDF. SI1 (BuNH<sub>2</sub>), SI2 (KDDE), and SI3 (oligo f3). Provisionally Accepted: Feb. 9, 2023. Accepted: Feb. 24, 2023. Published: April 5, 2023. This article also appears in: Hot Topic: Carbon Dioxide.
251. **SYMMETRICAL AZINE SERIES**: *4-Chloroacetophenone Azine (100 K, Polymorph I)*, Harmeet Bhoday, Steven S. Kelley, and Rainer Glaser, *CSD Communication* **2023**, 2251374 (VIJTAN, a.k.a. LIKHUI02). CCDC DOI: 10.5517/ccdc.csd.cc2fkqzq.
250. **SYMMETRICAL AZINE SERIES**: *3-Bromoacetophenone Azine (173 K, Polymorph, Sample C1)*, Harmeet Bhoday, Steven S. Kelley, and Rainer Glaser, *CSD Communication* **2023**, 2246663 (QIBNAU). CCDC DOI: 10.5517/ccdc.csd.cc2fdv0q.
249. **SYMMETRICAL AZINE SERIES**: *3-Bromoacetophenone Azine (173 K, Polymorph, Sample A3)*, Harmeet Bhoday, Steven S. Kelley, and Rainer Glaser, *CSD Communication* **2023**, 2246662 (QIBMUN). CCDC DOI: 10.5517/ccdc.csd.cc2fdtzn.
248. **(MeO, meta-X)-Acetophenone Azine Series**: *Meta-Bromoacetophenone para-Methoxyacetophenone Azine (Polymorph II, 173 K)*, Harmeet Bhoday, Steven P. Kelley, and Rainer Glaser, *CSD Communication* **2023**, 2238926 (TEXMES). CCDC DOI: 10.5517/ccdc.csd.cc2f4sft.
247. **(MeO, meta-X)-Acetophenone Azine Series**: *Meta-Bromoacetophenone para-Methoxyacetophenone Azine (Polymorph I, 173 K)*, Harmeet Bhoday, Steven P. Kelley, and Rainer Glaser, *CSD Communication* **2023**, 2234131 (SIFGIB). CCDC DOI: 10.5517/ccdc.csd.cc2dzsry.
246. **SYMMETRICAL AZINE SERIES**: *4-Bromoacetophenone Azine (100 K, Polymorph I)*, Harmeet Bhoday, Steven S. Kelley, and Rainer Glaser, *CSD Communication* **2023**, 2241667 (LEXTIV, a.k.a. LIKJEU03). CCDC DOI: 10.5517/ccdc.csd.cc2f7mv5.
245. **SYMMETRICAL AZINE SERIES**: *4-Bromoacetophenone Azine (150 K, Polymorph II)*, Harmeet Bhoday, Steven S. Kelley, and Rainer Glaser, *CSD Communication* **2023**, 2234130 (SIFGEX, a.k.a. LIKJEU02). CCDC DOI: 10.5517/ccdc.csd.cc2dzsqx.
244. **PARALLEL DIPOLE ALIGNMENT – Phenoxy Series**: *Para-Fluoroacetophenone para-Phenoxy-acetophenone Azine (Polymorph II, 100 K)*, Harmeet Bhoday, Steven P. Kelley, and Rainer

- Glaser, *CSD Communication* **2023**, 2234129 (SIFGAT). CCDC DOI: 10.5517/ccdc.csd.cc2dzspw.
243. View our Tweet. *Unnatural Lysines with Reduced Sidechain N-Basicity. Synthesis of N-trifluoroethyl Substituted Lysine and Homologs*, Brian Jameson and Rainer Glaser, *ChemistrySelect* **2022**, 7, e202203132 (1 of 6). DOI: <https://doi.org/10.1002/slct.202203132>. PDF. SI. Accepted: Nov. 18, 2022 (provisional). Accepted: Dec. 2, 2022. Published: Dec. 20, 2022.
  242. View our Tweet. *Importance of Solvent-Bridged Structures of Fluorinated Diphenylalanines. Synthesis, Detailed NMR Analysis, and Rotational Profiles of Phe(2-F)-Phe(2-F), Phe(2-F)-Phe, and Phe-Phe(2-F)*, Kaidi Yang, Fabio Gallazzi, Christina Arens, and Rainer Glaser, *ACS Omega* **2022**, 7 (46), 42629-42643. DOI: <https://doi.org/10.1021/acsomega.2c06351>. PDF. SI. Accepted: Nov. 2, 2022. Published: Nov. 11, 2022.
  241. Cover Feature of the 1/2023 Issue. Cover Profile. Cover in High-Res. *Rotation-Inversion Isomerization of Tertiary Carbamates: Potential Energy Surface Analysis of Multi-Paths Isomerization Using Boltzmann Statistics*, Brian Jameson and Rainer Glaser, *ChemPhysChem* **2023**, 24, e202200442 (1-16). DOI: <https://doi.org/10.1002/cphc.202200442>. PDF. SI. Accepted: Oct. 4, 2022. Published: Oct. 27, 2022. Cover Feature DOI: <https://doi.org/10.1002/cphc.202200894>. Cover Profile DOI: <https://doi.org/10.1002/cphc.202200893>.
  240. Cover of the Oct. 13, 2022 Issue! View our Tweet. *Origin of the Second-Order Proton Catalysis of Ferriin Reduction in Belousov-Zhabotinsky Reactions: Density Functional Studies of Ferriin and Ferriin Aggregates with Outer Sphere Ligands Sulfate, Bisulfate, and Sulfuric Acid*, Sara Catherine McCauley and Rainer Glaser, *J. Phys. Chem. A* **2022**, 126, 7261-7272. DOI: <https://doi.org/10.1021/acs.jpca.2c05879>. PDF. SI1. SI12. Accepted: Sept. 26, 2022. Published: Oct. 4, 2022.
  239. Cover of the Dec. 2022 Issue! Cover in High-Res. Watch the Video Short and our VS tweet! View the CPC Tweet. *Perfect Polar Alignment of Parallel Belamphiphile Monolayers: Synthesis, Characterization, and Crystal Architectures of Unsymmetrical Phenoxy-Substituted Acetophenone Azines*, Harmeet Bhoday, Michael Lewis, Steven P. Kelley, and Rainer Glaser, *ChemPlusChem* **2022**, 87, e202200224 (1 of 7). DOI: 10.1002/cplu.202200224. PDF. SI. Accepted: Aug. 30, 2022. Published: Sept. 20, 2022.
  238. **PARALLEL DIPOLE ALIGNMENT - (MeO,X)-Butadiene Series - (MeO, Br) Aligned: (E,E)-1-(4-bromophenyl)-4-(4-methoxy-phenyl)buta-1,3-diene**, Harmeet Bhoday, Justin Nulsen, Steven P. Kelley, and Rainer Glaser, *CSD Communication* **2022**, 2203168 (SERFOO). CCDC DOI: 10.5517/ccdc.csd.cc2cykyv.
  237. **PARALLEL DIPOLE ALIGNMENT - Nathan Knotts's Azine I Series: (E,E)-4-Iodoacetophenone 4'-(4''-Methoxyphenyl)acetophenone Azine**, Nathan Knotts, Charles Barnes, Steven P. Kelley, and Rainer Glaser, *CSD Communication* **2022**, 2205423 (NELDER). CCDC DOI: 10.5517/ccdc.csd.cc2d0xp1.
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23. *Incipient Nucleophilic Attack as a Probe for the Electronic Structure of Diazonium Ions. An Analysis of Neighboring Group Interactions in  $\beta$ -Carboxyvinyl diazonium Ions*, Rainer Glaser, Christopher Horan, Eric Nelson, and Kirk Hall, *J. Org. Chem.* **1992**, 57, 215-228. DOI: 10.1021/jo00027a040. PDF.
22. *Stereochemistry of Metalated Aldimines. 2. A Theoretical Study of Dimeric Ion Pair Aggregates of Isomeric Lithioacetal dimines and of Their Kinetically Controlled Reaction with Formaldehyde*, Rainer Glaser, Christopher Hadad, Kenneth B. Wiberg, and Andrew Streitwieser, Jr., *J. Org. Chem.* **1991**, 56, 6625-6637. DOI: 10.1021/jo00023a031. PDF.
21. *Stereochemistry of Metalated Aldimines. 1. An ab Initio Study of the Potential Energy Surfaces of Isolated Acetal dimine Anions, Their Monomeric Lithium and Sodium Ions Pairs, and Mechanistic Consequences*, Rainer Glaser and Andrew Streitwieser, Jr., *J. Org. Chem.* **1991**, 56, 6612-24. DOI: 10.1021/jo00023a030. PDF.
20. *Heterosubstituted Diazonium Ions  $FNN^+$ ,  $HONN^+$ , and  $H_2NNN^+$ . Automerization, Dediazonation, and Deprotonation*, Rainer Glaser and Godwin Sik-Cheung Choy, *J. Phys. Chem.* **1991**, 95, 7682-7693. DOI: 10.1021/j100173a025. PDF.



19. *Analysis of the Remarkable Difference in the Stabilities of Methyl- and Ethyldiazonium Ions*, Rainer Glaser, Godwin Sik-Cheung Choy, and M. Kirk Hall, *J. Am. Chem. Soc.* **1991**, *113*, 1109-1120. DOI: 10.1021/ja00004a008. PDF.
18. *Nitroaziridinium Ion Isomerization: Dihydrodiazete-N-Oxides and Azooxyalkenes from Aziridine Nitrosation*, Richard N. Loeppky, Qing Feng, Aloka Srinivasan, Rainer Glaser, Charles L. Barnes, and Paul R. Sharp, *J. Am. Chem. Soc.* **1991**, *113*, 2308-2309. DOI: 10.1021/ja00006a063. PDF.
17. *The Effects of the First and Second Row Substituents on the Structures and Energies of PH<sub>4</sub>X Phosphoranes. An ab Initio Study*, Peng Wang, Yale Zhang, Rainer Glaser, Alan Reed, Paul von R. Schleyer, and Andrew Streitwieser, Jr., *J. Am. Chem. Soc.* **1991**, *113*, 55-64. DOI: 10.1021/ja00001a011. PDF.
16. *Origin and Consequences of the Nonnuclear Attractor in the Electron Density Functions of Dilithium*, Rainer Glaser, Roy F. Waldron, and Kenneth B. Wiberg, *J. Phys. Chem.* **1990**, *94*, 7357-7362. DOI: 10.1021/j100382a009. PDF.
15. *Diazonium Ions. Topological Electron Density Analysis of Cyclopropenyliumdiazonium Dications and of Their Stability Toward Dediazonation*, Rainer Glaser, *J. Comput. Chem.* **1990**, *11*, 663-679. DOI: 10.1002/jcc.540110602. PDF.
14.  *$\eta^5$ -P- or  $\eta^4$ -P-Coordination in Apically Oxygenated Phosphoaranes? An ab Initio Study of PH<sub>4</sub>O<sup>-</sup>, PH<sub>4</sub>O<sup>-</sup> E<sup>+</sup> (E<sup>+</sup> = Li<sup>+</sup>, NH<sub>4</sub><sup>+</sup>, and HF) and Related Fluorinated Oxyphosphoranes*, Rainer Glaser and Andrew Streitwieser, Jr., *J. Comput. Chem.* **1990**, *11*, 249-264. DOI: 10.1002/jcc.540110211. PDF.
13. *Diazonium Ions. A Theoretical Study of Pathways to Automerization, Thermodynamic Stabilities, and Topological Electron Density Analysis of the Bonding*, Rainer Glaser, *J. Phys. Chem.* **1989**, *93*, 7993-8003. DOI: 10.1021/j100361a009. PDF.
12. *Ab Initio Study of the Regiochemistry of Dimetalated Oximes. The Importance of Ion Triplets in Isomeric Lithium and Sodium Ion Pairs of Acetaldoxime Dianion*, Rainer Glaser and Andrew Streitwieser, Jr., *J. Org. Chem.* **1989**, *54*, 5491-5502. DOI: 10.1021/jo00284a021. PDF.
11. *Dynamic Aspects of the Stereochemistry of Metalated Oxime Ethers. An ab Initio Study of the Pathways to Coordination-Isomerization, for Syn/Anti-Isomerization, and for Racemization of the Lithium Ion Pair of Acetaldoxime*, Rainer Glaser and Andrew Streitwieser, Jr., *J. Am. Chem. Soc.* **1989**, *111*, 8799-8809. DOI: 10.1021/ja00206a005. PDF.
10. *Conformational and Configurational Preferences in Oximes and Oxime Carbanions. An ab Initio Study of the Syn-Effect in Reactions of Oxyimine Enolate Equivalents*, Rainer Glaser and Andrew Streitwieser, Jr., *J. Am. Chem. Soc.* **1989**, *111*, 7340-7348. DOI: 10.1021/ja00201a010. PDF.
9. *Charge Transfers and Polarizations in Bonds to Silicon. Organosilanes and the S<sub>N</sub>2(Si) Reactions of SiH<sub>4</sub> + F<sup>-</sup>. An ab Initio Study*, Scott Gronert, Rainer Glaser, and Andrew Streitwieser, *J. Am. Chem. Soc.* **1989**, *111*, 3111-3117. DOI: 10.1021/ja00191a001. PDF.
8. *The Density Integration Approach to Populations. A Critical Comparison of Projection Populations to Populations Defined by the Theory of Atoms in Molecules*, Rainer Glaser, *J. Comput. Chem.* **1989**, *10*, 118-135. PDF.

7. Review. *A Theoretical Study of the Structures and Reactions of Metalated Oximes and Oxime Ethers*, Rainer Glaser and Andrew Streitwieser, *Pure & Appl. Chem.* **1988**, 60, 195-204. DOI: 10.1351/pac198860020195. PDF.
6. *An MNDO Study of Solvent-Free and Solvated Dimeric Lithium Ion Pairs of Acetaldoxime. Models for Dimeric Aggregates of Lithiated Oxime Ethers*, Rainer Glaser and Andrew Streitwieser, *J. Mol. Struct. THEOCHEM* **1988**, 163, 19-50. DOI: 10.1016/0166-1280(88)80377-4. PDF.
5. Review. *After Vinyl- and Aryl Cations, Alkynyl Cations: Mythos or Reality?* Michael Hanack, Jan Vermehren, Robert Helwig, and Rainer Glaser, *Stud. Org. Chem.* **1987**, 31, 17-23. PDF.
4. *A Study of Basis Set Effects on Structures and Electronic Structures of Phosphine Oxide and Fluorophosphine Oxide*, Andrew Streitwieser, Robert S. McDowell, and Rainer Glaser, *J. Comput. Chem.* **1987**, 10, 788-793. DOI: 10.1002/jcc.540080606. PDF.
3. *Semi-polar P-O and P-C Bonds. A Theoretical Study of Hypophosphite and Related Methylenephosphoranes*, Andrew Streitwieser, Andrzej Rajca, Robert S. McDowell, and Rainer Glaser, *J. Am. Chem. Soc.* **1987**, 109, 4184-4188. DOI: 10.1021/ja00248a010. PDF.
2. *Ethynyldiazonium Ions. Possible Precursors for the Generation of C-sp-Centered Carbenium Ions? An ab Initio Study of the Linear, Unimolecular Dissociation of the Parent Ethynyldiazonium Ion*, Rainer Glaser, *J. Am. Chem. Soc.* **1987**, 109, 4237-4243. DOI: 10.1021/ja00248a018. PDF.
1. Communication. *Theoretical Study of Structures and Relative Energies of Isomeric Metalated Acetaldoximes. Models for Metalated Oxime Ethers*, Rainer Glaser and Andrew Streitwieser, Jr., *J. Am. Chem. Soc.* **1987**, 109, 1258-1260. DOI: 10.1021/ja00238a053. PDF.

## **B. Patents**

1. *Dipole Aligned Molecular Materials with Nonlinear Optical Properties*. Rainer Ernst Glaser and Grace Shiahuy Chen, Inventors. Patent filed December 4, **1995**, with the U.S. Patent and Trademark Office, and issued May 8, **2001**, as Patent Nr. 6229047.

## **C. Books**

2. Edited Monograph: *Anisotropic Organic Materials - Approaches to Polar Order*. Rainer Glaser and Piotr Kaszynski, Editors. ACS Symposium Series, Volume 798. American Chemical Society: Washington, D.C., December **2001**.
1. Book Translation: *Advanced Organic Chemistry, Reaction Mechanisms*. R. Bruckner. Harcourt/Academic Press: San Diego, California, **2001**.

## **D. Dissertations**

Supervised 26 dissertations. Outside member on 18+ committees. Wrote 3 theses myself (Diplom, M.S., Ph.D.) For the 26 supervised dissertations, are listed the thesis titles, authors, and year awarded.

26. Fluorination of RuBisCO-mimetic CO<sub>2</sub> Capture Systems. Theoretical and Experimental Studies of Ammonium Ion Acidity Depression and Carbamylation

- Brian Jameson**, Ph.D. Dissertation, Missouri Univ. of Science & Techn., Rolla, MO, **2023**.
25. Experimental and Theoretical Studies of CO<sub>2</sub> Capture from Air and of Crystalline, Ferroelectric, Non-Linear Optical Materials  
**Kaidi Yang**, Ph.D. Dissertation, University of Missouri, Columbia, MO, **2022**.  
Part of this work was performed at Missouri Univ. of Science & Techn., SP19-SS22.
24. Investigation of CO<sub>2</sub> Capture Systems, Lewis-Acid-Base Pairs, and Oscillating Reactions with Electronic Structure Theory and Kinetics-Based Approaches  
**Joseph Schell**, Ph.D. Dissertation, University of Missouri, Columbia, MO, **2020**.  
Part of this work was performed at Missouri Univ. of Science & Techn., FS18-SS20.
23. Mechanistic and Computational Studies of Ferrocene, Simple Organic Acids, and Bromine Oxides  
**Cory Camasta**, M.S. Dissertation, University of Missouri, Columbia, MO, **2016**.
22. Conformational Studies on Adenine Formation and Spin Properties of Bio-related Radicals  
**Jian Yin**, Ph.D. Dissertation, University of Missouri, Columbia, MO, **2012**.
21. Asymmetrical Imine *N*-Inversion of 3-Methyl-4-Pyrimidinimine and (*E*)/(*Z*)-Isomerization of 3-Aminoacrylonitrile  
**Stephanie Coyle**, M.S. Dissertation, University of Missouri, Columbia, MO **2011**.
20. Variable-Temperature H-NMR and Ab Initio Study of Heterocyclic Amides: Competing Paths for Amide H-Scrambling  
**Yang Liu**, M.S. Dissertation, University of Missouri, Columbia, MO **2008**.
19. Anisotropic Organic Materials: Ferroelectric Crystals and Spin-Polarized Radicals  
**Yongqiang Sui**, Ph.D. Dissertation, University of Missouri, Columbia, MO, **2007**.
18. Ammonia Elimination from Protonated Nucleobases. Proton Mobility, Ammonium Ion Formation, and Fragmentation Paths  
**Shuo Yang**, M.S. Dissertation, University of Missouri, Columbia, MO, **2007**.
17. Nitrosative Guanine Deamination: Pyrimidine Ring-Opening - Implications of Effects in Homogeneous Solution as well as Anisotropic Environments  
**Papiya Majumdar**, Ph.D. Dissertation, University of Missouri, Columbia, MO, **2007**.
16. Aza-Analogues of Distyrylbenzene (DSB). Synthesis, Structures, and Properties of 1,4-Phenylenediamine Bisimines (PDABI)  
**Richard F. Murphy**, M.S. Dissertation, University of Missouri, Columbia, MO, **2006**.
15. Computational Chemical Toxicology: Deamination in Gas-Phase, Solution, and Anisotropic Environments  
**Hong Wu**, Ph.D. Dissertation, University of Missouri, Columbia, MO, **2005**.
14. Synthesis, Structures, and Optical Properties of Polar Organic Molecular Crystalline Materials  
**Nathan Knotts**, Ph.D. Dissertation, University of Missouri, Columbia, MO, **2005**.
13. *Chemistry Is in the News*: Assessing Intra-Group Peer Review  
**Kathleen Carson**, M.A. Dissertation, University of Missouri, Columbia, MO, **2005**.
12. Toward Polar 1,4-Diphenylbutadiene Materials  
**Yongqiang Sui**, M.S. Dissertation, University of Missouri, Columbia, MO, **2004**.
11. Information Technology in Chemistry Research and Education

- Zhengyu “Martin” Wu**, Ph.D. Dissertation, University of Missouri, Columbia, MO, **2004**.
10. Pyrimidine Ring-Opening in Nitrosative DNA Base Deamination: Experiment and Theory  
**Sundeep Rayat**, Ph.D. Dissertation, University of Missouri, Columbia, MO, **2003**.
  9. Experimental and Theoretical Studies of Halogen Bonding of Iodo-Substituted Azines  
**Naijun Chen**, M.S. Dissertation, University of Missouri, Columbia, MO, **2002**.
  8. Syntheses and Crystal Structures of 1,4-Diphenylbutadienes  
**Laxma Reddy Dendi**, M.S. Dissertation, University of Missouri, Columbia, MO, **2002**.
  7. Design and Realization of Polar Molecular Organic Crystals  
**Michael Lewis**, Ph.D. Dissertation, University of Missouri, Columbia, MO, **2001**.
  6. Eine *ab initio* Studie zur Dimerisierung von Thymin  
**Till Kühn**, Diplomarbeit, Universität Tübingen, **1997**.  
Research conducted at MU and thesis supervised by Prof. Häfelinger.
  5. Experimental and Theoretical Study of Dinitrogen Chemistry  
**Paul Haney**, M.S. Dissertation, University of Missouri, Columbia, MO, **1996**.
  4. Experimental and Theoretical Study of Dinitrogen Chemistry  
**Grace Chen**, Ph.D. Dissertation, University of Missouri, Columbia, MO, **1996**.
  3. Non-Synergistic Hydrogen Bonding in the Watson-Crick-Model Nucleic Acid Base Pairs.  
**Benjamin Harris**, Ph.D. Dissertation, University of Missouri, Columbia, MO, **1995**.
  2. An Experimental and Theoretical Investigation of the Electronic Structures of Diazonium Ions and of Their Phosphorus Analogues  
**Christopher J. Horan**, Ph.D. Dissertation, University of Missouri, Columbia, MO, **1995**.
  1. Applications and Developments of Electron and Spin Density Analysis  
**Godwin Sik-Cheung Choy**, Ph.D. Dissertation, Univ. of Missouri, Columbia, MO, **1994**.

## **E. Invited Conference Presentations**

Titles of invited lectures are given with presenter(s) underlined and **corresponding author(s)** in bold face followed by details about the symposium, conference, date, and location.

75. Teaching of science and publication ethics in higher education: Global adaptation to cultural diversity  
Kaidi Yang, **Rainer E. Glaser**, and Cun-Yue Guo  
Division on Professional Relations (PROF), Symposium on "Ethics in the chemical profession: Cultural impacts", Susan Schelble et al., Organizers, Pacificchem 2021, Honolulu, HI, Dec. 16-21, **2021. In-Person**.
74. Anchoring concepts content map (ACCM) for science ethics: Alignment with undergraduate education and a roadmap to ethics instruction  
**Rainer Glaser**, Kaidi Yang, Harmeet Singh Bhoday, and Brian Jameson  
Division on Professional Relations (PROF), Symposium on "Imagining a concept map for professional ethics in chemistry: Make your case for the main hubs", Rainer Glaser, Kelly Elkins, and Susan Schelble, Organizers, 2021 ACS Fall National Meeting, Atlanta, GA, Aug. 24, **2021. Oral - Hybrid, In Person**.
73. Computational and Experimental Studies of Rubisco-Biomimetic CO<sub>2</sub> Capture from Air

- Rainer Glaser**, Kaidi Yang, Joseph Schell, Kari Knobbe, Brian Jameson, and Chris Dempsey  
"We Dig Research" event, Office of the Vice Chancellor of Research, Missouri S&T, Rolla,  
MO, Sept. 26, 2020. **Virtual.**
72. Towards a commonly accepted science ethics: Experiences and guidance from scientists  
**Rainer Glaser**, **Kelly Elkins**, and **Susan M. Schelble**  
Division on Professional Relations (PROF), Symposium on "Commonly Accepted Science  
Ethics: Key to International Collaboration in Industry and the Academy", Kelly Elkins and  
Rainer Glaser, Organizers, 2020 ACS Fall National Meeting, San Francisco, CA, Aug. 16-20,  
2020. **Virtual.**
  71. Global Adaptation of a Course on Scientific Writing and Publication Ethics: From Missouri  
to China  
**Kaidi Yang**, **Rainer Glaser**, and Cun-Yue Guo  
Division on Professional Relations (PROF), Symposium on "Commonly Accepted Science  
Ethics: Key to International Collaboration in Industry and the Academy", Kelly Elkins and  
Rainer Glaser, Organizers, 2020 ACS Fall National Meeting, San Francisco, CA, Aug. 16-20,  
2020. **Virtual.**
  70. Why communicate about science? Experiences from scientists who engage the public  
**Michael Dahlstrom** and **Rainer Glaser**  
Symposium on "Carbon Capture, Utilization, and Storage", Rainer Glaser, Organizer, 2018  
Midwest Regional Meeting, Iowa State University, Ames, IA, Oct. 21-23, **2018.**
  69. Science communication as an essential driving force for course and curriculum development:  
CCUS education in university courses in the US and in China  
**Rainer Glaser**, Joseph Schell, and Kaidi Yang  
Symposium on "Carbon Capture, Utilization, and Storage", Rainer Glaser, Organizer, 2018  
Midwest Regional Meeting, Iowa State University, Ames, IA, Oct. 21-23, **2018.**
  68. Computational study of CO<sub>2</sub> capture by the rubisco-inspired tetrapeptide KDDE  
**Kaidi Yang**, Joseph Schell, and **Rainer Glaser**  
Symposium on "Carbon Capture, Utilization, and Storage", Rainer Glaser, Organizer, 2018  
Midwest Regional Meeting, Iowa State University, Ames, IA, Oct. 21-23, **2018.**
  67. Determination of the thermochemistry of CO<sub>2</sub> capture by alkylamines in aqueous solution  
using NMR techniques and density functional theory  
**Joseph Schell**, Kaidi Yang, Wei Wycoff, and **Rainer Glaser**  
Symposium on "Carbon Capture, Utilization, and Storage", Rainer Glaser, Organizer, 2018  
Midwest Regional Meeting, Iowa State University, Ames, IA, Oct. 21-23, **2018.**
  66. Practical Publishing Tips for Young Global Scientists: Writing  
**Rainer Glaser** and **Kaidi Yang**  
Host: Prof. Jia Wu, Foreign Language School, Northwest Polytechnical University, Xi'an,  
Shaanxi, China, June 15, **2018.**
  65. Practical Publishing Tips for Young Global Scientists: Pre-Writing  
**Rainer Glaser** and **Kaidi Yang**  
Host: Ms. Yanli Dong, International Course Center of Xi'an Gaoxin No.1 High School, Xi'an,  
Shaanxi, China, June 13, **2018.**
  64. From Scientific Writing to Scientific Authoring: Teaching Peer Review and Revision  
Strategies  
**Rainer E. Glaser**



- Invited Lecture as part of the series “Innovative Methods to Integrate Writing Assignments in the STEM Classroom”, CIRTL Network - The Center for the Integration of Research, Teaching and Learning, <https://www.cirtl.net/events/156>. Event Info as PDF. Feb. 16, **2017**, 4 pm CT. Video of this presentation and Videos of the series on online.
63. Learning science ethics and science communication in the International Year of Pulses  
**Rainer E. Glaser**, Joseph Schell, Kaidi Yang, Casey Hawkins, Shelby Herr, Guy Houser, Kyle Maryan, and Angelou Song  
 Invited Lecture in the Bodner Symposium, 2016 Biennial Conference on Chemical Education (BCCE 2016), University of Northern Colorado, Greeley, CO, Aug. 2, **2016**.
  62. Rubisco-Inspired Biomimetic Approaches To Reversible CO<sub>2</sub> Capture From Air  
**Rainer Glaser**, Joseph Schell, Andrew Muelleman, Spencer Glazer, Paula O. Castello-Blindt, and Jian Yin  
 Host: Prof. Carl Redshaw, Prof. Biao Wu, NSFC-British Council Workshop “Energy and Environment”, July 15-18, 2016, Northwest University, Xi'an, Shaanxi, China, July 17, **2016**.
  61. Practical Tips for Young Global Scientists on Publishing Chemistry: Writing  
**Rainer Glaser** and **Kaidi Yang**  
 Host: Prof. Carl Redshaw, Prof. Biao Wu, NSFC-British Council Workshop “Energy and Environment”, July 15-18, 2016, Northwest University, Xi'an, Shaanxi, China, July 17, **2016**.
  60. Practical Tips for Young Global Scientists on Publishing Chemistry: Pre-Writing  
**Rainer Glaser** and **Kaidi Yang**  
 Host: Prof. Carl Redshaw, Prof. Biao Wu, NSFC-British Council Workshop "Energy and Environment", July 15-18, 2016, Northwest University, Xi'an, Shaanxi, China, July 16, **2016**.
  59. Effects of Donor Solvation and Aggregation on Structures and Stabilities of Acyclic and Cyclic aluminoxanes: Results of ab initio Studies Including Dispersion  
**Rainer Glaser** and Kaidi Yang  
 Host: Prof. Shi-Yong Yang, 9<sup>th</sup> International Symposium On High-Tech Polymer Materials (HTPM-IX) - Synthesis, Characterization, and Applications, July 11-14, 2016, Da He Jinjiang Hotel, 66 Hua Yuan Road, Zhengzhou, China, July 13, **2016**.
  58. High-Performance Computing @MU: Electronic Structure Theory  
**Rainer Glaser**  
 Remote-Delivered Lecture, ACI-REF Conference (Advanced Cyberinfrastructure Research and Education Facilitators), Henry Neeman, Organizer, March 23, **2016**.
  57. Teaching Scientific Writing and Scientific Peer Review - Framework of an Assignment-Based Curriculum  
**Rainer E. Glaser**  
 Plenary Lecture, 1st International Conference on the Development of English Across the Curriculum, The Hong Kong Polytechnic University, Dec. 14-15, **2015**.
  56. Confronting the complexity of nonlinear systems. Mechanistic insights into the Belousov-Zhabotinsky oscillating chemical reaction  
**Rainer Glaser**, Carmen Chicone, Ethan T. Zars, Marco Delarosa, Michelle Lukosi, Cory Camasta  
 Invited Lecture, Symposium on “Advances in Computational Chemistry”, Rhoads, J., Organizer. 2015 ACS Regional Meeting, St. Joseph, MO, Oct. 22, **2015**.
  55. Structural Chemistry and Thermochemistry of MAO Formation. Studies of Cycloalumin-oxane Ligands and of the Aggregation of Acyclic Aluminoxanes

**Rainer Glaser**

Poster Presentation, CB2015 Conference, The Chemical Bonds at the 21<sup>st</sup> Century, Xiamen University, Xiamen, Fujian, June 16, **2015**.

54. Mechanistic Studies of Oscillating Chemical Reactions: Measurements, Computations, and Simulations

**Rainer Glaser**, Carmen Chicone, Marco Delarosa, Ethan Zars, and Cory Camasta

Host: Prof. Michael Harmata, 28<sup>th</sup> Organic Chemistry Day, University of Missouri, Columbia, MO, April 11, **2015**.

53. Structural Chemistry and Thermochemistry of Mao Formation. Studies of Cycloaluminoxane Ligands and of the Aggregation of Acyclic Aluminoxanes

**Rainer Glaser**

Host: Prof. Shi-Yong Yang, 8<sup>th</sup> International Symposium On High-Tech Polymer Materials (HTPM-VIII) - Synthesis, Characterization And Applications, July 1-5, 2014, Beijing, China, Fragrant Hill Hotel, No.40 Maimai Street, Haidian District, Beijing, China, July 2, **2014**.

52. Teaching Chemistry in Cross-Disciplinary Contexts at Various Academic Levels: Context, Collaboration and Communication

**Rainer E. Glaser**

Invited Plenary Lecture, Eurovariety 2013, 5<sup>th</sup> Eurovariety in Chemistry Education Conference, University of Limerick, Ireland, July 3, **2013**. (PDF)

51. Teaching Chemistry in the Context of a Cross-Disciplinary Research Seminar

**Rainer E. Glaser**, Jennifer Hart, Jennifer Fellabaum, Eric Ludwig

Invited Lecture, Division of Chemical Education, Fall 2012 National Meeting, American Chemical Society, Philadelphia, PA, Aug. 19-23, **2012**.

50. Reversible CO<sub>2</sub> Capture from Air

**Rainer Glaser** and Bruce McClure

Lecture, STOM Conference, Science Teachers of Missouri, State Chapter of NSTA, Capitol Plaza, Jefferson City, MO, Oct. 3, **2009**.

49. *Chemistry Is in the News*: Philosophy, History, and Evolution of the CIITN Curriculum

**Rainer Glaser**

Lecture, "Chemistry is in the News and Teacher Quality Enhancement" Workshop. Susan Schelble, Organizer. Department of Chemistry, Metropolitan State College of Denver, Denver, CO, March 15, **2008**.

48. *Chemistry Is in the News*: Collaboration, Peer Review, and Science Communication.

**Rainer E. Glaser**, Kathleen Carson, and Yongqiang Sui

Lecture, Symposium on "Science Communication - Essential Skill for All" Symposium at the 232nd National Meeting & Exposition of the American Chemical Society, San Francisco, CA, Sept. 13, **2006**. Organizers: Ann Nalley, President, American Chemical Society, Penny Gilmer, Department of Chemistry and Biochemistry, Florida State University, and Rainer Glaser, Department of Chemistry, University of Missouri-Columbia.

47. *Chemistry Is in the News*: Preparation for Science Communication

**Rainer E. Glaser** and Yongqiang Sui

Lecture, Symposium on "Science Education: Vital Connection of Science to the Public Sphere", 19<sup>th</sup> Biennial Conference on Chemical Education (BCCE), Purdue University, West Lafayette, IN, July 30 - Aug. 3, **2006**.

46. **Europe-2006**: Polar Organic Functional Materials

- Rainer Glaser**, Nathan Knotts, Yongqiang Sui, Ping Yu, Linghui Li, **Meera Chandrasekhar**, and Christopher Martin  
Invited Lecture, Dalton Discussion 9: Functional Molecular Assemblies, Hulme Hall, Manchester, United Kingdom, April 19-21, **2006**.
45. Synergistic integration of science with ICT education  
**Rainer E. Glaser** and Yongqiang Sui  
Invited Lecture, 231<sup>st</sup> National Meeting of the American Chemical Society, Symposium on "Instructional Technology in Inorganic and General Chemistry Education: A Symposium Honoring Jack Kotz," Atlanta, GA, March 26-30, **2006**.
  44. Chemistry Is in the News: Preparing College Students for Science Communication  
**Rainer E. Glaser**, Yongqiang Sui, Kathleen Carson, and Shelly Rodgers  
Invited Lecture, AAAS Annual Meeting 2006, Symposium on "Science Communication for All," St. Louis, MO, Feb. 19, **2006**.
  43. Achievement of Polar Order with Parallel Beloamphiphile Monolayers. Synthesis, Structure, and Solid-State Optical Properties  
**Rainer Glaser**, Nathan Knotts, Ping Yu, Linghui Li, **Meera Chandrasekhar**, and Christopher Martin  
17<sup>th</sup> International Conference on the Chemistry of the Organic Solid State (ICCOSS XVII), University of California, Los Angeles, CA, July 24-29, **2005**.
  42. Chemistry Is in the News: Active Learning, Interclass and Interstate, and Interdisciplinary  
**Rainer E. Glaser**, **Susan Schelble**, Yongqiang Sui, Kathleen M. Carson, and Erik Angles  
Invited Lecture, Prof. Charles Kingsbury, Organizer, Teaching Organic Chemistry Conference, Lincoln, NE, June 3, **2005**.
  41. Chemistry Is in the News: Evolution of a modern curriculum  
**Rainer E. Glaser**, Kathleen M. Carson, Yongqiang Sui, Brian Hodgen, Cecelia Koetting, Susan M. Schelble, Uri Zoller, Gregor Fels, and Shelly Rodgers  
Invited Lecture, "NSF Catalyzed Curriculum Development" Symposium, Dr. Susan Hixson, Organizer, Division of Chemical Education, 229<sup>th</sup> ACS National Meeting, San Diego, CA, March 14, **2005**.
  40. Chemistry Is in the News webtool: Employing information science and technology to harness global information sources  
**Rainer E. Glaser**, **Yongqiang Sui**, and **Kathleen Carson**  
Invited Lecture, "Teaching Computer Modeling in First Year Chemistry" Symposium, Dr. Felix Autenrieth, Organizer, Division of Chemical Education, 229<sup>th</sup> ACS National Meeting, San Diego, CA, March 14, **2005**.
  39. Chemistry is in the News workshops: Faculty preparation and development  
**Rainer E. Glaser**, Kathleen Carson, Brian Hodgen, Zhengyu Wu, Yongqiang Sui, Susan Schelble, and Eric Lupo  
Invited Lecture, "NSF Sponsored Center for Workshops in the Chemical Sciences and the Impact of the Workshops on Curriculum Development" Symposium, Dr. David Collard, Organizer, Division of Chemical Education, 228<sup>th</sup> ACS National Meeting, Philadelphia, PA, Aug. 22-26, **2004**.
  38. Chemistry is in the News: Teaching Students to Read Science  
**Brian Hodgen**, Kathleen Carson, Zhengyu Wu, Yongqiang Sui, **Rainer E. Glaser**

- Invited Lecture, "Scientific Literacy for the New Century" Symposium, Dr. Gabriela Weaver, Organizer, 18<sup>th</sup> Biennial Conference on Chemistry Education (BCCE), Iowa State University, Ames, IA, July 20, **2004**.
37. Science is in the News: High School Chemistry Enrichment Opportunity  
Kathleen Carson, Brian Hodgen, Zhengyu Wu, Yongqiang Sui, **Rainer E. Glaser**  
Invited Lecture, "K16 Collaborations" Symposium, Dr. Penny Gilmer, Organizer, 18<sup>th</sup> Biennial Conference on Chemistry Education (BCCE), Iowa State University, Ames, IA, July 19, **2004**.
36. Chemistry Is in the News  
**Rainer E. Glaser**, Kathleen Carson, Brian Hodgen, Zhengyu Wu, and Yongqiang Sui  
Invited Lecture, Summer Physical Science Institute for Middle Level Teachers, Dr. Meera Chandrasekhar, Organizer, University of Missouri, Columbia, MO, July 12, **2004**.
35. Synthesis of Adenine in Interstellar Space: A Mass Spectroscopy and Theoretical Study  
**Rainer Glaser**, Brian Hodgen, Hong Wu, Elliot McKee, Dean Farrelly, Papiya Majumdar, and Ming Qian  
Invited Lecture, "Chemistry in Interstellar Space" Symposium, Lewis Snyder and Clifford Dykstra, Organizers, CERM2004: 36<sup>th</sup> ACS Central Regional Meeting, IUPUI Hotel and Conference Center, Indianapolis, IN, June 2, **2004**.
34. Chemistry is in the News: Preparation for Science Communication  
**Rainer E. Glaser**, Kathleen Carson, Brian Hodgen, Zhengyu Martin Wu, Yongqiang John Sui, Susan Schelble, and Eric Lupo  
Poster, "Invention and Impact: Building Excellence in Undergraduate STEM Education," National Science Foundation, Course, Curriculum, and Laboratory Improvement (NSF-CCLI) program conference, April 16-18, **2004**, Hyatt Regency Crystal City, Arlington, VA.
33. Teaching in Context: Using News to Make Chemistry Content Relevant  
Kathleen Carson, Brian Hodgen, Martin Wu, John Sui, and **Rainer E. Glaser**  
Invited lecture, 14<sup>th</sup> Annual Teaching Renewal Conference, Program for Excellence in Teaching, Memorial Union, University of Missouri-Columbia, Feb. 26 - 18, **2004**.
32. Rational Design of Polar Molecular Organic Materials  
**Rainer Glaser**, Nathan Knotts, and John Sui  
Invited lecture, "Organic Materials Chemistry" Symposium, P. Kaszynski, Organizer, Division of Organic Chemistry, SERMACS 2003: 55<sup>th</sup> ACS Southeast Regional Meeting, Renaissance Atlanta Hotel, Atlanta, GA, Nov. 17, **2003**.
31. Contextual Testing in Chemistry: Preparation for the MCAT  
**Rainer E. Glaser**, Brian Hodgen, and Kathleen Carson  
Invited lecture, "Organic Chemistry Education" Symposium, B. Brent, Organizer, Division of Chemical Education, 38<sup>th</sup> ACS Midwest Regional Meeting, Columbia, MO, Nov. 5 - 7, **2003**.
30. Postmodern Science Communication - Challenge and Mandate  
**Rainer E. Glaser**  
Invited lecture in the "Instructional Developments in Organic Chemistry Education" Symposium, M. Mosher, Organizer, Division of Chemical Education, 226<sup>th</sup> ACS National Meeting, New York, NY, Sept. 7 - 11, **2003**.
29. Enhancing the International Dimension. Chemistry is in the News. News Media Based Authentic Learning Activities that Connect Science to Students' Real World Experiences and Needs

- Rainer E. Glaser\* [a], James Groccia [b] and Susan Schelble [c]  
[a] Department of Chemistry and [b] Program for Excellence in Teaching, University of Missouri-Columbia, Columbia, MO, and [c] Department of Chemistry, University of Colorado-Denver, Denver, CO. Invited lecture, 28th Improving University Teaching 2003 Conference, Växjö University, Växjö, Sweden, June 16-19, 2003.
28. The "Chemistry is in the News" Project: Learning & Writing, Collaboration & Peer Review.  
**Rainer E. Glaser** and **Zhengyu Wu**  
13th Annual Teaching Renewal Conference, Program for Excellence in Teaching, Memorial Union, University of Missouri-Columbia, Feb. 27 - March 1, **2003**.
27. The "Chemistry is in the News" Project: Teaching Chemistry in the Context of Real-World Issues"  
**Rainer E. Glaser** [a], Zhengyu Wu [a], Deborah L. Hume [b], and James Groccia [c]  
[a] Department of Chemistry, [b] Department of Psychology, and [c] Program for Excellence in Teaching, University of Missouri-Columbia, Columbia, MO. 6th World Congress of Theoretically Oriented Chemists, Lugano, Switzerland, Palazzo dei Congressi, Aug. 4-9, **2002**.
26. The "Chemistry is in the News" Project: Teaching Organic Chemistry in the Context of Real-World Issues  
**Rainer E. Glaser**  
Melanie M. Cooper, Department of Chemistry, Clemson University, Organizer. Gordon Science Education & Policy Conference, "Innovations in College Chemistry Teaching," Connecticut College, New London, CT, June 23-28, **2002**.
25. Chemistry is in the News: Communicating Chemistry via News Media Based Learning Activities  
**Rainer E. Glaser** and James Groccia  
Invited lecture in the "Communicating Chemistry" Symposium, C. Kotz & Leonard Fine, Organizers, Division of Chemical Education, 223<sup>rd</sup> ACS National Meeting, Orlando, FL, April 7-11, **2002**.
24. Using the News in College Courses  
**Rainer E. Glaser**, **Zhengyu Wu**, and **Susan M. Schelble**  
12th Annual Teaching Renewal Conference, Program for Excellence in Teaching, Memorial Union, University of Missouri-Columbia, Feb. 14-16, **2002**.
23. Theoretical Studies of DNA Base Deamination  
**Rainer Glaser**, Sundeep Rayat, Michael Lewis, Brian Hodgen, and Karen Williams  
34<sup>th</sup> Midwest Theoretical Chemistry Conference, Supercomputing Institute for Digital Simulation an Advanced Computation, Minneapolis, MN, Oct. 5-6, **2001**.
22. Theoretical Studies of DNA Deamination. Pyrimidine Ring-Opening and Recyclizations in the Nitrosative Deaminations of Guanine, Cytosine and Adenine  
**Rainer Glaser**, Sundeep Rayat, Michael Lewis, Thomas Carl, and Brian Hodgen  
Division of Computers in Chemistry, Symposium on "Computational Studies of Reaction Mechanisms and Enzyme Modes of Action", Tim Clark, Organizer, 221<sup>st</sup> ACS National Meeting, San Diego, CA, April 1-5, **2001**.
21. Philosophy, Pedagogy And Taxonomy Of News Media Based Authentic Learning Activities  
**Rainer E. Glaser**  
Invited lecture in the "Organic Chemistry Teaching in the New Century" Symposium, C. Kingsbury, Organizer, Division of Chemical Education, 221<sup>st</sup> ACS National Meeting, San



- Diego, CA, April 1 - 5, **2001**. This lecture was featured in *Chemical & Engineering News*, April 16, **2001**, in the article *Teaching Organic Chemistry* by Pamela S. Zurer.
20. Chemistry in Context: Organic Chemistry, Newspapers, and Educational Technology.  
**Rainer E. Glaser**  
Program for Excellence in Teaching, 10th Teaching Renewal Conference, Memorial Union, Feb. 2-4, **2000**. Evaluations
  19. Chemistry is in the News. Implementation and Assessment of an Authentic Learning Activity in a Large Lecture Course  
**Rainer E. Glaser** (a) and Deborah L. Hume (b)  
(a) Department of Chemistry and (b) Department of Psychology, University of Missouri, Columbia, Missouri 65211. Symposium on "Chemistry Education and the Web/Multimedia", Dawood Afzal, Organizer, Division of Chemical Education, 34<sup>th</sup> ACS Midwest Regional Meeting, Quincy, IL, Oct. 27-29, **1999**.
  18. Highly Dipole-Parallel Aligned Organic Molecular Crystals: Design and Realization of Prototypes  
**Rainer Glaser** and **Michael Lewis**  
Invited Presentation in the Symposium on "Anisotropic Organic Materials," Division of Organic Chemistry, 218<sup>th</sup> ACS National Meeting, New Orleans, LA, Aug. 22-26, **1999**.
  17. Optical Properties of Organic Wide Band-Gap Semiconductors Under High Pressure  
**S. Guha** (a), W. Graupner (b), S. Yang (c), Q. Cai (c), C. M. Martin (c), **M. Chandrasekhar** (c), H. R. Chandrasekhar (c), **R. Glaser** (d), and G. Leising (e), (a) Physics Department, Marquette University, Milwaukee, WI, (b) Department of Physics, Virginia Tech, Blacksburg, VA, (c) Department of Physics and Astronomy, University of Missouri, Columbia, MO, (d) Department of Chemistry, University of Missouri, Columbia, MO, (e) Institut für Festkörperphysik, Technische Universität Graz, Austria.  
Invited Presentation in the Symposium on "Anisotropic Organic Materials," Division of Organic Chemistry, 218<sup>th</sup> ACS National Meeting, New Orleans, LA, Aug. 22-26, **1999**.
  16. Chemistry is in the News. Implementation and Assessment of an Authentic Learning Activity  
**Rainer E. Glaser** (a) and Deborah L. Hume (b)  
(a) Department of Chemistry and (b) Department of Psychology, University of Missouri, Columbia, MO. Symposium on "Assessment of Program and Instructional Innovations: How to Tell What Works?", C. Bowen, Organizer, Division of Chemical Education, 218<sup>th</sup> ACS National Meeting, New Orleans, LA, Aug. 25, **1999**.
  15. Toward Student-Centered Learning in Undergraduate Chemistry Instruction  
**Rainer Glaser**  
Board of Curators, The University of Missouri. Symposium on "Impact of Technology on Student Learning," July 15, **1999**.
  14. Organic Chemistry in Context: Making Organic Chemistry Relevant  
**Rainer Glaser**  
Organic Chemistry Teaching Symposium, Dr. Kingsbury, Organizer, Lincoln, NE, April 24, **1999**.
  13. Theoretical Studies of DNA Base Deamination. The Structure of "Guaninediazonium Ion" in Its Aggregate with Cytosine  
**Rainer Glaser**, Michael Lewis, and Sundeep Rayat  
Symposium on "Applications of Computational Chemistry to Toxicology and the Development of Agricultural Chemicals," Prof. William E. White, Organizer, Divisions of

- Computers in Chemistry, Chemical Toxicology, and Agro Chemicals. 217<sup>th</sup> ACS National Meeting, Anaheim, CA March 21-25, **1999**.
12. Combination of Physical-Organic and Theoretical Methods in Electronic Structure Analysis of Biologically Relevant Electrophiles  
**Rainer Glaser**, Michael Lewis, Sarah Meyer, Stephanie Nelson, Rhonda Walsh, and Sundeep Rayat  
Symposium on "Practical Applications of Quantum Mechanics," Prof. Andrew Holder, Organizer, Physical Chemistry Division, 33<sup>rd</sup> ACS Regional Meeting, Wichita, KS, Nov. 4-6, **1998**.
  11. Biologically Relevant Diazonium Ions. Deamination of Aromatic Amines Including the Nucleic Acid Bases  
**Rainer Glaser**, Stephanie Nelson and Michael Lewis  
Lecture in the symposium on "Electrophilic DNA-Damage," Organic Chemistry Division, 215<sup>th</sup> ACS National Meeting, Dallas, TX, March 29 - April 2, **1998**.
  10. Collaborative Learning and Peer Review in Undergraduate Learning Communities  
**Rainer E. Glaser** and Melissa Poole  
Division of Chemical Education, Symposium "Taming the Whale: Innovations for Large Chemistry Courses," 215<sup>th</sup> ACS National Meeting, Dallas, TX, March 31, **1998**.
  9. Research Oriented Learning and Peer Review  
**Rainer E. Glaser**  
Program for Excellence in Teaching, 8<sup>th</sup> Teaching Renewal Conference, Memorial Union, March 12, **1998**.
  8. alpha-Heteroatom-Substituted Carbenium Ions  
**Hansjörg Grützmacher**, Grace S. Chen, Christina Marchand, **Rainer Glaser**, Christian Widauer, and Gernot Frenking  
Symposium on "Moving Toward the Second Century of Carbocation Chemistry". The 5<sup>th</sup> Chemical Congress of North America, Cancun, Mexico, Nov. 14, **1997**.
  7. Dipole-Alignment in Crystalline Organic Materials for Nonlinear Optics  
**Rainer Glaser**, Michael Lewis, Grace S. Chen, and Charles Barnes  
Nonlinear Optics Symposium, 32<sup>nd</sup> ACS Midwest Regional Meeting, Tan-Tar-A Resort, Lake of the Ozarks, Osage Beach, MO, Oct. 30, **1997**.
  6. Dipole Aligned Crystalline Molecular Organic Materials for Nonlinear Optics. Theoretical Considerations and Prototype Realization  
**Rainer Glaser** and **Michael Lewis**  
Symposium on "Structural and Mechanistic Organic Chemistry. A Tribute to Norman L. Allinger," sponsored jointly by the International Academy of Quantum Molecular Sciences and the World Association of Theoretically Oriented Chemists (WATOC), University of Georgia, Athens, GA, June 4-7, **1997**. Pictorial.
  5. From Computer-Mediated Communication (CMC) to the Creation of Collaborative Small Learning Communities  
**Rainer Glaser**  
1997 MUIIT Summer Institute, University of Missouri-Columbia, May 27, **1997**.
  4. Learning Communities in Undergraduate Science Education  
**Rainer E. Glaser** and **Melissa Poole**

- 7<sup>th</sup> Annual Teaching Renewal Conference, University of Missouri-Columbia, Columbia, MO, March 5-7, 1997.
3. The Cation-Dinitrogen Interaction. From Dative Bonding Theory to Problems in Chemical Toxicology  
**Rainer Glaser**  
Presented at the symposium on "Elucidation of Organic Reaction Mechanisms by Ab Initio Methods," Computers in Chemistry Division, 212<sup>th</sup> ACS National Meeting, Orlando, FL, Aug. 27, 1996.
  2. MO/HOMO/LUMO Interactions in Sophomore Organic Chemistry  
**Rainer Glaser** (panelist)  
David Lewis, Moderator, Organic Teaching Symposium, University of Nebraska, Lincoln, NE, May 23 - 24, 1996.
  1. Theoretical Studies of Deamination Reactions  
**Rainer Glaser**  
The St. Louis Gathering on Computer-Aided Molecular Design and Computational Chemistry, May 17, 1991.

## **F. Departmental Colloquia and Seminars**

Titles of invited lectures are given followed by the names of all authors, the name of the host, the hosting institution, and the date of the presentation. All invited lectures were regularly scheduled and publicly announced colloquia. Presenter(s) underlined, **corresponding author(s)** in bold face.

190. State of the S&T Department of Chemistry: Focus on the Graduate Program  
**Rainer Glaser**  
Missouri University of Science & Technology, Rolla, MO, Jan. 28, 2022. **In Person and via Zoom.**
189. The Nature of Science Research in a Global Environment: Challenges and Opportunities for Young Scientists  
**Rainer Glaser**  
Host: Prof. Darla Jia, School of Sciences, Lindenwood University, St. Charles, MO, March 9, 2021. **Virtual.**
188. The Nature of Science Research in a Global Environment: Challenges and Opportunities for Young Scientists  
**Rainer Glaser**  
Host: Prof. Derek Bussan, Department of Chemistry, Eastern Kentucky University, Richmond, KY, Feb. 26, 2021. **Virtual.**
187. CO<sub>2</sub>-Capture by the Rubisco-Inspired Tetrapeptide KDDE: Sequence of Carbamate Formation and Mg<sup>2+</sup> Complexation  
**Rainer Glaser**, Kaidi Yang, Joseph Schell, Brian Jameson, Kari Knobbe, and Christopher Dempsey  
Host: Prof. Qingfeng Ge, Department of Chemistry and Biochemistry, Southern Illinois University, Carbondale, IL, Oct. 9, 2020. **Virtual.**
186. Science Ethics, Goals, and Aspirations *in Times of a Pandemic*  
**Rainer Glaser**  
Host: Missouri University of Science & Technology, Rolla, MO, Sept. 11, 2020. **Virtual.**

185. Graduate Studies in Chemistry at Missouri University of Science and Technology: An Overview and Research Cases Studies  
**Rainer Glaser**  
Host: Prof. Jerry Easdon, Department of Chemistry, College of the Ozarks, Branson, MO, Feb. 26, **2020**.
184. CO<sub>2</sub>-Capture by the Rubisco-Inspired Tetrapetide KDDE: Sequence of Carbamate Formation and Mg<sup>2+</sup> Complexation  
**Rainer Glaser**, Kaidi Yang, Joseph Schell, Brian Jameson, Kari Knobbe and Christopher Dempsey  
Host: Prof. Charles Mebi, Department of Chemistry, Arkansas Tech University, Russellville, AR, Feb. 25, **2020**.
183. Publication Ethics Instruction in Upper-Division Undergraduate and Graduate Chemistry Seminars in the US and China  
**Rainer Glaser**, Kaidi Yang, Kathryn Northcut, Alanna Krolikowski, and Cun-Yue Guo  
Host: Prof. Charles Mebi, Department of Chemistry, Arkansas Tech University, Russellville, AR, Feb. 25, **2020**.
182. CO<sub>2</sub>-Capture by the Rubisco-Inspired Tetrapetide KDDE: Sequence of Carbamate Formation and Mg<sup>2+</sup> Complexation  
**Rainer Glaser**, Kaidi Yang, Joseph Schell and Kari Knobbe  
Host: Prof. Fei Wang, Department of Chemistry, Missouri State University, Springfield, MO, Oct. 23, **2019**.
181. Publication Ethics Instruction in Upper-Division Undergraduate and Graduate Chemistry Seminars in the US and China  
**Rainer Glaser**, Kaidi Yang, Kathryn Northcut, Alanna Krolikowski, and Cun-Yue Guo  
Host: Prof. Marianthe V. Karanikas, Department of English, Missouri State University, Springfield, MO, Oct. 22, **2019**.
180. Science Ethics, Goals, and Aspirations  
**Rainer Glaser**  
Missouri University of Science & Technology, Rolla, MO, Aug. 23, **2019**.
179. Biomimetic Rubisco-Inspired CO<sub>2</sub> Capture from Air: Theoretical Studies of the KDDE Model and the Sequence of Carbamate Formation and Complexation  
**Rainer Glaser** and Kaidi Yang  
Host: Prof. Fang Chen, Northwestern Polytechnical University, Xi'an, Shaanxi, China, July 5, **2019**.
178. Practical Publishing Tips for Young Global Scientists: Writing  
**Rainer Glaser** and Kaidi Yang  
Host: Prof. Conghui Zhang, School of Metallurgical Engineering, Xi'an University of Architecture and Technology (XAUAT), Xi'an, Shaanxi, China, July 5, **2019**.
177. Practical Publishing Tips for Young Global Scientists: Pre-Writing  
**Rainer Glaser** and Kaidi Yang  
Host: Prof. Conghui Zhang, School of Metallurgical Engineering, Xi'an University of Architecture and Technology (XAUAT), Xi'an, Shaanxi, China, July 5, **2019**.
176. From Kinetic Studies of Nonlinear Dynamical Systems Toward Quantitative H<sub>2</sub>PO<sub>4</sub><sup>-</sup> Sensing  
**Rainer Glaser**, Joseph Schell, Ethan Zars, and Carmen Chicone

- Host: Dr. Keith Loftin, Organic Geochemistry Research Laboratory, USGS Kansas Water Science Center, Lawrence, KS, Nov. 9, **2018**.
175. Astrochemistry and Astrophysics of Molecules in Interstellar Space  
**Rainer Glaser**  
Host: Ms. Rebecca Marcolina, Space Week, Missouri University of Science & Technology, Nov. 5, **2018**.
174. Biomimetic Approaches to Reversible CO<sub>2</sub> Capture from Air: Education, Communication, and Innovation  
**Rainer Glaser**, Kaidi Yang, and Joseph Schell  
Host: Dr. Ke-Qing Zhao, College of Chemistry, Sichuan Normal University, Chengdu, Sichuan Province, June 21, **2018**.
173. Biomimetic Approaches to Reversible CO<sub>2</sub> Capture from Air: Education, Communication, and Innovation  
**Rainer Glaser**, Kaidi Yang, and Joseph Schell  
Host: Dr. Jason Chroma, College of Chemistry, Sichuan University, Chengdu, Sichuan Province, June 20, **2018**.
172. Biomimetic Rubisco-Inspired CO<sub>2</sub> Capture from Air  
**Rainer Glaser**, Kaidi Yang, and Joseph Schell  
Host: Prof. Fang Chen, Northwestern Polytechnical University, Xi'an, Shaanxi, China, June 15, **2018**.
171. Crystal Engineering Approach to Ferroelectric Organic Crystalline Materials  
**Rainer Glaser** and Kaidi Yang  
Host: Prof. Fang Chen, Northwestern Polytechnical University, Xi'an, Shaanxi, China, June 12, **2018**.
170. Expanded Peptide Synthesis and LC-MS Applications  
**Fabio Gallazzi** and **Rainer Glaser**  
Host: Dr. Michael Reithofer, Institut fuer Bio-Anorganische Chemie, Universität Wien, Wien, Austria, June **2018**.
169. Electronic Structures, Spin Densities and Vibrational Properties of Small Graphenes C6 - C80  
**Rainer Glaser** and Nicohl Corretjer  
Host: Department of Physics and Astronomy, University of Missouri, Columbia, MO, April 3, **2018**.
168. Biomimetic Approaches to Reversible CO<sub>2</sub> Capture from Air: Education, Communication, and Innovation  
**Rainer Glaser**  
Host: Dr. Dina Merrer, Department of Chemistry, Barnard College Columbia University, New York, NY, March 2, **2018**.
167. Biomimetic Approaches to Reversible CO<sub>2</sub> Capture from Air: Education, Communication, and Innovation  
**Rainer Glaser**  
Host: Brandon Schiro, CUNY Bernard Baruch College's BioMedical Society. Department of Natural Sciences, Chemistry, CUNY Baruch College, New York, NY, March 1, **2018**.
166. Biomimetic Approaches to Reversible CO<sub>2</sub> Capture from Air: Education, Communication, and Innovation  
**Rainer Glaser**



- Host: Department of Chemistry, Missouri University of Science and Technology, Rolla, MO, Jan. 22, **2018**.
165. Scientific Writing Across the Curriculum: Making a Global Impact  
**Rainer Glaser**  
Host: Campus Writing Program, University of Missouri, Columbia, MO, Conley House, Dec. 6, **2017**.
164. IR-Spectroscopic Studies of Gas-Phase Ionization of Partially Hydrogenated PAHs  
**Rainer Glaser**, Xuejuan Yang, and Aigen Li  
Host: Department of Physics and Astronomy, University of Missouri, Columbia, MO, Dec. 5, **2017**.
163. Biomimetic Approaches to Reversible CO<sub>2</sub> Capture from Air  
**Rainer Glaser**, Joseph Schell, Kaidi Yang, Andrew Muelleman, Spencer Glazer, Paula O. Castello-Blindt and Jian Yin  
Host: Prof. Chad McGee, Department of Chemistry, Metropolitan State University, Denver, CO, Sept. 1, **2017**, Colloquium, Part 2.
162. Teaching and Learning of ‘Scientific Writing and Authoring’ and ‘Science Communication’: Microethics and Macroethics  
**Rainer Glaser**, Kaidi Yang, and Joseph Schell  
Host: Prof. Chad McGee, Department of Chemistry, Metropolitan State University, Denver, CO, Sept. 1, **2017**, Colloquium, Part 1.
161. Molecular Properties of Radical Cations of Partially Hydrogenated Polycyclic Aromatic Hydrocarbons  
**Rainer Glaser**  
Host: Prof. Xuejuan Yang, Department of Physics and Astronomy, Xiangtan University, Xiangtan, Hunan Province, June 16, **2017**.
160. Biomimetic Approaches to Reversible CO<sub>2</sub> Capture from Air  
**Rainer Glaser**, Joseph Schell, Kaidi Yang, Andrew Muelleman, Spencer Glazer, Paula O. Castello-Blindt, and Jian Yin  
Host: Prof. Lili Zhao, School of Chemistry and Molecular Engineering, Nanjing Technical University, Nanjing, Jiangsu, China, June 14, **2017**.
159. Learning scientific writing, science ethics, and science communication in the International Year of Pulses  
**Rainer Glaser**, Kaidi Yang, Joseph Schell, Casey Hawkins, Shelby Herr, Guy Houser, Kyle Maryan, and Angelou Song  
Host: Prof. Lili Zhao, School of Chemistry and Molecular Engineering, Nanjing Technical University, Nanjing, Jiangsu, China, June 14, **2017**.
158. Practical Publishing Tips for Young Global Scientists: Writing  
**Rainer Glaser** and Kaidi Yang  
Hosts: Prof. Fang Chen, Prof. Fuli Zhang. Part of the Workshop “English for Research Publication Purposes (ERPP)”, May 24 - June 2, 2017, Northwestern Polytechnical University, Xi’an, Shaanxi, China, May 26, **2017**.
157. Practical Publishing Tips for Young Global Scientists: Pre-Writing  
**Rainer Glaser** and Kaidi Yang

- Hosts: Prof. Fang Chen, Prof. Fuli Zhang. Part of the Workshop “English for Research Publication Purposes (ERPP)”, May 24 - June 2, 2017, Northwestern Polytechnical University, Xi’an, Shaanxi, China, May 24, **2017**.
156. Biomimetic Approaches for CO<sub>2</sub> Capture from Air  
**Rainer Glaser**  
Host: Ruben Savizky and Robert Topper, Department of Chemistry, Cooper Union, New York, NY, April 5, **2017**.
155. Learning science ethics and science communication in the International Year of Pulses.  
**Rainer Glaser**  
Host: Ruben Savizky and Robert Topper, Department of Chemistry, Cooper Union, New York, NY, April 4, **2017**.
154. The Lewis HPC Cluster: Electronic Structure Theory in Research and Education  
**Rainer Glaser**  
Host: University of Missouri, Cyberinfrastructure-Council, Columbia, MO, Feb. 21, **2017**.
153. Biomimetic Approaches for CO<sub>2</sub> Capture from Air  
**Rainer Glaser**  
Host: James Balthazar, Department of Chemistry, Fort Hays State University, Hays, KS, Feb. 6, **2017**.
152. PAHs in the ISM: Molecular Properties of Radical Cations of Partially Hydrogenated Polycyclic Aromatic Hydrocarbons  
**Rainer Glaser**, X.J. Yang, and Aigen Li  
Host: Department of Physics and Astronomy, University of Missouri, Columbia, MO, Nov. 29, **2016**.
151. Biomimetic Approaches to Reversible CO<sub>2</sub> Capture From Air  
**Rainer Glaser**, Joseph Schell, Andrew Muelleman, Spencer Glazer, Paula O. Castello-Blindt, and Jian Yin  
Host: Department of Chemistry, Ball State University, Muncie, IN, Oct. 20, **2016**.
150. Learning scientific writing, science ethics, and science communication in the International Year of Pulses  
**Rainer Glaser**, Joseph Schell, Kaidi Yang, Casey Hawkins, Shelby Herr, Guy Houser, Kyle Maryan, and Angelou Song  
Host: Department of Chemistry, Ball State University, Muncie, IN, Oct. 20, **2016**.
149. Structural Chemistry and Thermochemistry of MAO Formation. Studies of Cycloaluminum-oxane Ligands and of the Aggregation of Acyclic Aluminoxanes  
**Rainer Glaser** and Kaidi Yang  
Host: School of Natural and Applied Sciences, The Department of Applied Chemistry, Northwestern Polytechnical University (NPU), Xi’an, Shaanxi, China, July 7, **2016**.
148. ‘Scientific Writing and Authoring’ Instruction at the University of Missouri and the University of Chinese Academy of Sciences  
**Rainer Glaser**, Kaidi Yang, Cun-Yun Guo, Yan Gu  
Host: School of Natural and Applied Sciences, The Department of Applied Chemistry, Northwestern Polytechnical University (NPU), Xi’an, Shaanxi, China, July 7, **2016**.
147. Experimental and Theoretical Studies of Aggregation of Pyridines  
Samantha Wilkerson, Samantha McKee, Dalton Doerr, and **Rainer Glaser**

- Host: Organic Chemistry Seminar, Department of Chemistry, University of Missouri, Columbia, MO, April 25, **2016**.
146. Biomimetic CO<sub>2</sub> Capture from Air  
**Rainer Glaser**  
Host: Prof. Paul Brandt, Department of Chemistry, North Central College, Naperville, IL, Oct. 13, **2015**.
145. Structural Chemistry and Thermochemistry of MAO Formation. Studies of Cycloaluminosiloxane Ligands and of the Aggregation of Acyclic Aluminosiloxanes  
**Rainer Glaser**  
Host: Prof. Hong “Nick” Xuechuan, College of Chemistry and Molecular Sciences, Wuhan University, Wuhan, Hubei Province, July 10, **2015**.
144. Magnesium Silicate Catalysis of Carbon Oxidation  
**Rainer Glaser**, Cory Camasta, Kathy Yang, and Aigen Li  
Host: Profs. Aigen Li and Xuejuan Yang, Department of Physics and Astronomy, Xiangtan University, Xiangtan, Hunan Province, July 8, **2015**.
143. ‘Scientific Writing and Authoring’ Instruction at the University of Missouri (MU) and at the University of Chinese Academy of Science (UCAS)  
**Rainer Glaser**  
Host: Profs. Aigen Li and Xuejuan Yang, Department of Physics and Astronomy, Xiangtan University, Xiangtan, Hunan Province, July 8, **2015**.
142. Teaching Scientific Writing and Peer Review in a Writing-Intensive Upper-Division Seminar  
**Rainer Glaser**  
Host: Marcelle Siegel, Abell Conversations about College Science Teaching, Bond Life Sciences Center, University of Missouri, Columbia, MO, April 22, **2015**.
141. Bifurcation in the Conformational Space of Bromoacetic Acid Radical Cation  
Ethan Zars and **Rainer Glaser**  
Host: Organic Chemistry Seminar, Department of Chemistry, University of Missouri, Columbia, MO, December 8, **2014**.
140. Scientific Writing Education: The Four Dimensions of Scaffolding  
**Rainer Glaser**  
Faculty Innovations Workshop, Campus Writing Program, University of Missouri, Columbia, MO, Nov. 12, **2014**.
139. Iron and/or Cerium Catalyzed Belousov-Zhabotinsky Reactions: Video Analysis, Kinetics and Modelling  
Marco Delarosa, Ethan Zars, **Rainer Glaser**, and **Carmen Chicone**  
Host: Organic Chemistry Seminar, Department of Chemistry, University of Missouri, Columbia, MO, Sept. 29, **2014**.
138. Biomimetic Approaches to Reversible CO<sub>2</sub> Capture From Air  
**Rainer Glaser**  
Host: Prof. Paul Steinbach, Department of Chemistry, Benedictine College, Atchison, KS, Sept. 19, **2014**.
137. Dynamical Approach to Multi-Equilibria Problems - An Introduction  
**Rainer Glaser**, Marco Delarosa, and **Carmen Chicone**  
Host: Organic Chemistry Seminar, Department of Chemistry, University of Missouri, Columbia, MO, Sept. 8, **2014**.

136. Biomimetic Approaches to Reversible CO<sub>2</sub> Capture From Air. *N*-Methylcarbaminic Acid Formation in Rubisco-Inspired Models  
**Rainer Glaser**, Paula O. Castello-Blindt, and Jian Yin  
 Host: Prof. Yuping Wu, Department of Chemistry, Fudan University, Shanghai, China, July 18, **2014**.
135. An Assignment-Based Curriculum to Teach Scientific Writing & Peer Review  
**Rainer E. Glaser**  
 Host: Profs. Rongjie Zhou and Zhong-Ren Chen, Department of Materials Science and Chemical Engineering, Ningbo University, Ningbo, Zhejiang, China, July 16, **2014**.
134. Structural Chemistry and Thermochemistry of MAO Formation and MAO-Assisted Olefin Polymerization  
**Rainer Glaser**  
 Host: Profs. Rongjie Zhou and Zhong-Ren Chen, Department of Materials Science and Chemical Engineering, Ningbo University, Ningbo, Zhejiang, China, July 16, **2014**.
133. An Assignment-Based Curriculum to Teach Scientific Writing & Peer Review  
**Rainer E. Glaser**  
 Host: Prof. Wei Wu, College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, Fujian, China, July 14, **2014**.
132. Biomimetic Approaches to Reversible CO<sub>2</sub> Capture From Air. *N*-Methylcarbaminic Acid Formation in Rubisco-Inspired Models  
**Rainer Glaser**, Paula O. Castello-Blindt, and Jian Yin  
 Host: Prof. Wei Wu, College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, Fujian, China, July 14, **2014**.
131. Biomimetic Approaches to Reversible CO<sub>2</sub> Capture From Air. *N*-Methylcarbaminic Acid Formation in Rubisco-Inspired Models  
**Rainer Glaser**, Paula O. Castello-Blindt, and Jian Yin  
 Host: Feng Chen, International College and Sino-Danish Center for Education and Research (SDC), University of the Chinese Academy of Sciences, Room S102, Teaching Building, No.80 Zhongguancun East Rd., Haidian District, Beijing, China, 3-4:30 pm, June 24, **2014**.
130. Biomimetic Approaches to Reversible CO<sub>2</sub> Capture From Air. *N*-Methylcarbaminic Acid Formation in Rubisco-Inspired Models  
**Rainer Glaser**, Paula O. Castello-Blindt, and Jian Yin  
 Host: Biao Wu, Department Chemistry, Northwest University, Xi'an, Shaanxi, June 13, **2014**.
129. Teaching Chemistry in Cross-Disciplinary Contexts at Various Academic Levels: Context, Collaboration and Communication  
**Rainer E. Glaser**  
 Host: Biao Wu, Department Chemistry, Northwest University, Xi'an, Shaanxi, June 9, **2014**.
128. Scaffolding Techniques in Scientific Writing Education  
**Rainer Glaser**  
 Host: Faculty Innovations Workshop, Campus Writing Program, University of Missouri, Columbia, MO, April 9, **2014**.
127. Magnesium Silicate Catalysis of Carbon Oxidation  
**Rainer Glaser**, Cory Camasta, Kathy Yang, and Aigen Li  
 Host: Department of Physics and Astronomy, University of Missouri, Columbia, MO, Feb. 18, **2014**.

126. Unpaired Electrons Well Below the Fermi Level. Toward a Conceptual Understanding of Molecular Spintronics  
**Rainer Glaser**  
Host: Department of Chemistry, University of Missouri, Columbia, MO, Nov. 3, **2013**.
125. So, You Think You Understand the IR Spectrum of Toluene? Really?  
**Rainer Glaser**  
Host: Department of Chemistry, University of Missouri, Columbia, MO, Sept. 16, **2013**.
124. Biomimetic approaches to reversible CO<sub>2</sub> capture from air. *N*-Methylcarbaminic acid formation in Rubisco-inspired models  
**Rainer Glaser**  
Host: Prof. Mahamud Subir, Department of Chemistry, Ball State University, Muncie, IN, Sept. 6, **2013**.
123. Teaching Chemistry in the Context of a Cross-Disciplinary Research Seminar  
**Rainer E. Glaser**, Jennifer Hart, Eric Ludwig, Jennifer Fellabaum, George Smith, Francis Schmidt, Dix Pettet, and Carmen Chicone  
Host: Prof. Biao Wu, Department of Chemistry, Northwest University, Xi'an, Shaanxi, China, July 24, **2013**. PDF.
122. Teaching Chemistry in Cross-Disciplinary Contexts at Various Academic Levels: Context, Collaboration and Communication  
**Rainer E. Glaser**  
Host: Dr. Biao Wu, Department of Chemistry, Northwest University, Xi'an, Shaanxi, China, July 23, **2013**. PDF.
121. Biomimetic Approaches to CO<sub>2</sub> Capture from Air: Models for the Active Site of Rubisco  
**Rainer Glaser**  
Host: Prof. Wen-Hua Sun, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100290, China, July 20, **2013**.
120. Gas Phase Infrared Spectroscopy of Polycyclic Aromatic Hydrocarbons (PAHs) and of Their Monomethyl Derivatives. Part 2. Anharmonicities of the Methyl-Rotor and Approaches to Infrared Intensity Scaling  
**Rainer Glaser**, Xuejuan Yang, and Aigen Li  
Host: Prof. Bahram Mashoon, Department of Physics and Astronomy, University of Missouri, Columbia, MO, April 23, **2013**.
119. Arenes and Heteroarenes in the Universe: Identification, Astronomical Localities and Chemical Mechanisms of Formation  
**Rainer Glaser**  
Host: Prof. Melanie Mormile, Dept. of Biological Sciences, Missouri University of Science and Technology, Rolla, MO, March 11, **2013**. Guest Lecture in Course on Astrobiology, 2 pm.
118. Prebiotic Synthesis of Biological Molecules in Interstellar Space  
**Rainer Glaser**  
Host: Prof. Melanie Mormile, Department of Biological Sciences, Missouri University of Science and Technology, Rolla, MO, March 11, **2013**. Departmental Seminar, noon.
117. Gas Phase Infrared Spectroscopy of Polycyclic Aromatic Hydrocarbons (PAHs) and of Their Monomethyl Derivatives -- Theory, Lab Measurements and Astronomical Observation  
Xuejuan Yang, **Rainer Glaser**, and Aigen Li

- Host: Prof. Bahram Mashoon, Department of Physics and Astronomy, University of Missouri, Columbia, MO, March 5, **2013**.
116. Disproportionation of Bromous Acid HOBrO by Direct O-Transfer and via Anhydrides O(BrO)<sub>2</sub> and BrO-BrO<sub>2</sub>. Mechanism of a Key Step of the Belousov-Zhabotinsky Oscillating Reaction  
**Rainer Glaser**  
Host: Prof. Diane Cermak, Department of Chemistry, Knox College, Gatesburg, IL, Sept. 20, **2012**.
115. Fe(II)/MAO catalyzed olefin polymerization: Oxophilicity of cyclic and acyclic aluminoxane ligands in Fe(II) Complexes  
**Rainer Glaser**  
Host: Prof. Wen-Hua Sun, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100290, China, June 6, **2012**.
114. QCI Studies of Metabolic Pathways of Hypoxia-Selective Heterocyclic Di-N-Oxide Antitumor Agent Tirapazamine (TPZ) and Derivatives and Analogs  
**Rainer Glaser**  
Host: Prof. Xuechuan Hong, Key Department of Combinatorial Biosynthesis and Drug Discovery, Wuhan University, Luojia Hill, Wuhan 430072, China, Medical School Lecture Hall, June 1, **2012**.
113. Disproportionation of Bromous Acid HOBrO by Direct O-Transfer and via Anhydrides O(BrO)<sub>2</sub> and BrO-BrO<sub>2</sub>. Mechanism of a Key Step of the Belousov-Zhabotinsky Oscillating Reaction.  
**Rainer Glaser**  
Host: Prof. Xuechuan Hong, Key Department of Combinatorial Biosynthesis and Drug Discovery, Wuhan University, Luojia Hill, Wuhan 430072, China, May 29, **2012**.
112. Understanding Scientific Peer Review: Responsible Criticism and Dealing with Peer Review (A Website-Based Presentation)  
**Rainer E. Glaser**  
Host: Prof. Xuechuan Hong, Key Department of Combinatorial Biosynthesis and Drug Discovery, Wuhan University, Luojia Hill, Wuhan 430072, China, May 28 (3pm) **2012**.
111. Curriculum Development to Teach Scientific Writing in Chemistry (A Website Presentation)  
**Rainer Glaser**  
Host: Prof. Xuechuan Hong, Key Department of Combinatorial Biosynthesis and Drug Discovery, Wuhan University, Luojia Hill, Wuhan 430072, China, May 28 (2pm) **2012**.
110. An Astrophysical View of Biosignature Gases  
**Rainer Glaser**  
Host: Prof. Bahram Mashoon, Department of Physics and Astronomy, University of Missouri, Columbia, Missouri, Feb. 28, **2012**.
109. Unidentified IR Features in Circumstellar and Interstellar Nebulae and the Deep Hot Biosphere  
**Rainer Glaser**  
Host: Prof. Bahram Mashoon, Department of Physics and Astronomy, University of Missouri, Columbia, MO, Dec. 6, **2011**.
108. Astrochemistry and Prebiotic Chemical Evolution  
**Rainer Glaser**



Host: Prof. Melanie Mormile, Department of Biological Sciences, Missouri University of Science and Technology, Rolla, MO, March 18, **2011**.

107. Reversible CO<sub>2</sub> Capture from Air

**Rainer Glaser**

Host: Prof. Judith Moroz, Department of Chemistry and Biochemistry, Bradley University, Peoria, IL, March 3, **2011**.

106. Near-Authentic Learning Experiences in Scientific Writing and Scientific Peer Review

**Rainer Glaser**

Host: Prof. Jeff Rice, Director, Campus Writing Program, University of Missouri, Conley House, Oct. 7, **2010**.

105. Aspirin - Research and Education.

**Rainer E. Glaser**

Host: Prof. Chanjuan Xi, Department of Chemistry, Tsinghua University, Beijing 100084, China, June 18, **2010**.

104. Trimethylaluminum Hydrolysis and Iron-Catalyzed Olefin Polymerization

**Rainer Glaser**

Host: Prof. Wen-Hua Sun, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100290, China, June 17, **2010**.

103. Chemical Mechanisms and Astronomical Localities for Adenine Synthesis

**Rainer Glaser** (MU, Chemistry) and Melanie Koehler (MU, Physics & Astronomy)

Host: Prof. Aigen Li, Department of Physics and Astronomy, University of Missouri, Columbia, MO, March 16, **2010**.

102. Saturday Morning Science: CO<sub>2</sub> Sequestration and Global Warming. The Case for CO<sub>2</sub> Capture from Air

**Rainer Glaser**

Host: Life Science and Society Program, University of Missouri, Columbia, Missouri, March 6, **2010**.

101. Hydrogen Atom Delocalization in Molecules with Extremely-Low-Barrier Double Well Potentials

**Rainer Glaser** (MU, Chemistry) and **Stephen Montgomery-Smith** (MU, Math)

Host: Prof. Aigen Li, Department of Physics and Astronomy, University of Missouri, Columbia, MO, March 3, **2009**.

100. Prebiotic Synthesis of Adenine. Hydrogen Atom Tunneling in the Virtual [1,7]-Sigmatropic Rearrangement of Monocyclic HCN-Pentamer

**Rainer Glaser**

Host: Prof. Aigen Li, Department of Physics and Astronomy, University of Missouri, Columbia, MO, Nov. 11, **2008**.

99. Prebiotic Nucleobase Synthesis

**Rainer Glaser**

Host: Prof. John de Banzie, Department of Natural Sciences, Northeastern State University, Tahlequah, OK, Oct. 22, **2008**.

98. Electronic Structure Theory as a Tool for Astronomers

**Rainer Glaser**

Host: Prof. Aigen Li, Department of Physics and Astronomy, University of Missouri, Columbia, MO, Oct. 7, **2008**.

97. Cosmic Conversations: Prebiotic Synthesis of Biological Molecules in Interstellar Space  
**Rainer Glaser**  
Host: Prof. Angela Speck, Department of Physics and Astronomy, University of Missouri, in conjunction with the Central Missouri Astronomical Society, Columbia, MO, Oct. 1, **2008**.
96. Prebiotic Nucleobase Synthesis  
**Rainer Glaser**  
Host: Prof. Ben Caldwell, Department of Chemistry, Western Missouri State University, St. Joseph, MO, Sept. 24, **2008**.
95. Studies of Plausible Nucleobase Synthesis in Interstellar Space and Prediction of Properties of Observable Precursors  
**Rainer Glaser** and Yang Liu  
Host: Profs. Bahram Mashhoon and Aigen Li, Department of Physics & Astronomy, University of Missouri, Columbia, MO, Feb. 19, **2008**.
94. Prebiotic Chemistry In the Cool ISM  
**Rainer Glaser**  
Profs. Bahram Mashhoon and Aigen Li, Department of Physics & Astronomy, University of Missouri, Columbia, MO, Nov. 6, **2007**.
93. Saturday Morning Science: Prebiotic Chemistry in Interstellar Space?  
**Rainer Glaser**  
Host: Life Science and Society Program, University of Missouri, Columbia, MO, Oct. 6, **2007**.
92. Chemistry In Interstellar Space: Many Questions, some Answers  
**Rainer Glaser**  
Host: Prof. Aigen Li, Department of Physics & Astronomy, University of Missouri, Columbia, MO, April 3, **2007**.
91. Crystal Engineering of Polar Organic Materials  
**Rainer Glaser**  
Host: Prof. Donald Schreiber, Department of Chemistry, Western Michigan University, Kalamazoo, MI, March 12, **2007**.
90. Crystal Engineering of Polar Organic Materials  
**Rainer Glaser**  
Host: Prof. Kenneth Marcus, Department of Chemistry, Clemson University, Clemson, SC, Jan. 11, **2007**.
89. **Europe-2006:** Crystal Engineering of Polar Materials for Nonlinear Optics Applications  
**Rainer Glaser**  
Host: Prof. Martin P. Attfield, Centre for Microporous Materials, School of Chemistry, The University of Manchester, Manchester, UK, April 18, **2006**.
88. **Europe-2006:** Crystal Engineering of Polar Materials: Theory and Practice  
**Rainer Glaser**  
Host: Prof. Andreas Hirsch, Institute fuer Organische Chemie, Friederich-Alexander Universität, Erlangen-Nürnberg, Germany, April 10, **2006**.
87. Informatics Institute Colloquium: Elements of Informatics in Chemistry Research and Education  
**Rainer Glaser**

- Host: Prof. Gary Stacey, National Center for Soybean Technology, University of Missouri, Columbia, MO, April 6, **2006**.
86. Crystal Engineering of Polar Materials: Theory and Practice  
**Rainer Glaser**  
Host: Prof. Sundee Rayat, Department of Chemistry, Kansas State University, Manhattan, KS, March 9, **2006**.
85. Chemical Mechanisms of Nitrosative Carcinogenesis  
**Rainer Glaser**  
Host: Prof. Andrzej Rajca, Department of Chemistry, University of Nebraska, Lincoln, NE, March 8, 2006.
84. Functional Polar Materials Based on Parallel Beloamphilie Monolayers: From Design to Patent  
**Rainer Glaser**  
Host: Prof. Tuck Wong, Department of Chemistry, University of Missouri-Columbia, Columbia, MO, Nov. 15, **2005**.
83. Chemistry in Anisotropic Environments: Theoretical and Experimental Studies of Rotational Barriers in DNA  
**Rainer Glaser**  
Host: Prof. Yirong Mo, Department of Chemistry, Western Michigan University, Kalamazoo, MI, Oct. 10, **2005**.
82. Chemistry Is in the News: Evolution of a Modern Curriculum  
**Rainer Glaser**  
Host: Prof. Michael Novak, Department of Chemistry and Biochemistry, Miami University, Oxford, OH, June 21, **2005**.
81. Chemistry in Anisotropic Media: Cytosine Catalysis of Nitrosative Guanine Deamination  
**Rainer Glaser**  
Host: Prof. Chris Switzer, Department of Chemistry, University of California-Riverside, Riverside, CA, June 1, 2005.
80. **MU Campus NFTS**: Developing and Funding Teaching-Centered Grant Proposals  
Susanne Carter, Rainer Glaser, and Suzanne Burgoyne, Panelists  
Host: University of Missouri, College of Education, March 10, **2005**.
79. Chemistry in Anisotropic Media: Cytosine Catalysis of Nitrosative Guanine Deamination  
**Rainer Glaser**  
Host: Prof. Robert Cook, Department of Chemistry & Biochemistry, Auburn University, Auburn, AL, March 9, **2005**.
78. Polarity in Natural and Synthetic Materials  
**Rainer Glaser**  
Host: Prof. Michael Lewis, Department of Chemistry, Saint Louis University, St. Louis, Missouri, Feb. 11, 2005.
77. Health Informatics Seminar. Informatics in Chemistry Research and Education  
**Rainer Glaser**  
Host: Prof. Joyce Mitchell and Prof. George Demiris, MU Health Management & Informatics and Biomedical & Health Informatics Research Training, University of Missouri, Columbia, MO, Nov. 16, **2004**.

76. Conversations on College Science Teaching. Exploring the competition-collaboration continuum in collaborative group work  
Kathleen Carson, Yongqiang Sui, and **Rainer Glaser**  
 Host: Prof. Sandra Abell, Southwestern Bell Science Education Center, University of Missouri, Columbia, MO, Nov. 11, **2004**.
75. Physics O. M. Stewart Colloquium. DNA Base Synthesis in Interstellar Space  
**Rainer Glaser**  
 Host: Prof. H. R. Chandrasekhar, Department of Physics and Astronomy, University of Missouri, Columbia, MO, Oct. 4, **2004**.
74. DNA Base Deamination and Interstrand Cross-Link Formation  
**Rainer Glaser**  
 Host: Prof. Kendall Houk, Department of Chemistry and Biochemistry, University of California-Los Angeles, Los Angeles, CA, June 10, **2004**.
73. **MU Campus NFTS**: Developing and Funding Teaching-Centered Grant Proposals  
Susanne Carter, Rainer Glaser, and Suzanne Burgoyne, Panelists  
 University of Missouri, College of Education, April 8, **2004**.
72. Chemistry is in the News: Preparation for Science Communication  
 2003-4 E.K. Mellon Honorary Seminar on Chemical Education  
**Rainer Glaser**  
 Host: Prof. Penny Gilmer, Department of Chemistry and Biochemistry, Florida State University, Tallahassee, FL, Jan. 23, **2004**.
71. Chemistry is in the News: Learning & Writing, Collaboration & Peer Review  
**Rainer Glaser**  
 Host: Prof. Penny Gilmer, Department of Chemistry and Biochemistry, Florida State University, Tallahassee, FL, Jan. 22, **2004**.
70. Polar Organic Crystalline Materials by Rational Design  
**Rainer Glaser**  
 Host: Prof. Wolfgang Haase, Institut für Chemie, Technische Universität, Darmstadt, Nov. 11, **2003**.
69. Theoretical and Experimental Studies in Chemical Toxicology  
**Rainer Glaser**  
 Host: Prof. Bernhard Schlegel, Department of Chemistry, Wayne State University, Detroit, MI, Oct. 29, **2003**.
68. Nitrosative Guanine Deamination: Experimental Evidence for Pyrimidine Ring-Opening During Deamination from <sup>18</sup>O-Labeling Studies and Cross-Link Formation Chemistry  
**Rainer Glaser**  
 Host: Prof. Robert McMahon, Department of Chemistry, University of Wisconsin, Madison, WI, Oct. 22, **2003**.
67. Systematic Approaches to Polar Order in Highly Anisotropic Materials  
**Rainer Glaser**  
 Host: Prof. Andrzej Rajca, Department of Chemistry, University of Nebraska-Lincoln, Lincoln, NE, Oct. 13, **2003**.
66. Systematic Approaches to Polar Order in Highly Anisotropic Materials  
**Rainer Glaser**

- Host: Prof. William T. Pennington, Department of Chemistry, Clemson University, Clemson, SC, Oct. 2, **2003**.
65. Dipole Alignment by Rational Design  
**Rainer Glaser**  
Host: Prof. Kendall Houk, Department of Chemistry and Biochemistry, University of California-Los Angeles, Los Angeles, California, July 28, 2003.
64. **Sweden-Germany Tour 2003:** Polar Order in Crystalline Organic Molecular Materials by Rational Design  
**Rainer Glaser**  
Host: Prof. Martin Kaupp, Institut für Physikalische Chemie, Universität Würzburg, Würzburg, Germany, July 1, **2003**.
63. **Sweden-Germany Tour 2003:** Systematic Approaches to Polar Order in Highly Anisotropic Organic Materials  
**Rainer Glaser**  
Host: Prof. Günter Häfeli, Institut für Organische Chemie, Universität Tübingen, Tübingen, Germany, June 24, **2003**.
62. **Sweden-Germany Tour 2003:** DNA Base Synthesis in Interstellar Space  
**Rainer Glaser**  
Host: Prof. Reinhard Brückner, Institut für Organische Chemie und Biochemie, Albert-Ludwigs-Universität Freiburg, Freiburg, Germany, June 23, **2003**.
61. Approaches to Polar Order in Organic Molecular Crystals  
**Rainer Glaser**  
Host: Prof. Andy Pacheco and Peter Geissinger, Department of Chemistry, University of Wisconsin-Milwaukee, Milwaukee, WI, Nov. 5, **2001**.
60. Approaches to Polar Order in Organic Molecular Crystals  
**Rainer Glaser**  
Host: Profs. Valerie Sheares and William Jencks, Department of Chemistry, Iowa State University, Ames, IA, Oct. 26, **2001**.
59. Nitrosative Deamination of the DNA Bases  
**Rainer Glaser**  
Host: Prof. Christopher Hadad, Department of Chemistry, The Ohio State University, Columbus, OH, Jan. 25, **2001**.
58. Nitrosative Deamination of the DNA Bases  
**Rainer Glaser**  
Host: Prof. Michael Novak, Department of Chemistry, Miami University, Oxford, OH, Jan. 24, **2001**.
57. Design and Realization of Highly Anisotropic Organic Materials  
**Rainer Glaser**  
Host: Prof. Scott McKay, Department of Chemistry, Central Missouri State University, Warrensburg, MO, Nov. 15, **1999**.
56. Design and Realization of Highly Anisotropic Organic Materials  
**Rainer Glaser**  
Host: Prof. Piotr Kaszynski, Colloquium, Department of Chemistry, Vanderbilt University, Nashville, TN, Sept. 20, **1999**.

55. Design and Realization of Highly Anisotropic Organic Materials  
**Rainer Glaser**  
Host: Prof. Griesinger, Seminar für Organische Chemie, Institut für Organische Chemie, Johann Wolfgang Goethe Universität Frankfurt, Frankfurt, Germany, April 16, **1999**.
54. **California Tour 1998:** Design and Realization of Highly Anisotropic Organic Materials  
**Rainer Glaser**  
Host: Prof. Paula Bruice, Organic Chemistry Seminar, Department of Chemistry, University of California-Santa Barbara, Santa Barbara, CA, Oct. 29, **1998**.
53. **California Tour 1998:** Cation-Dinitrogen Interactions. From Studies of Dative Bonding to Problems in Chemical Toxicology  
**Rainer Glaser**  
Host: Prof. Kendall Houk, Houk Group Seminar, Department of Chemistry and Biochemistry, University of California, Los Angeles, CA, Oct. 27, **1998**.
52. **California Tour 1998:** Design and Realization of Highly Anisotropic Organic Materials  
**Rainer Glaser**  
Host: Prof. Kendall Houk, The UCLA Organic Colloquium, Department of Chemistry and Biochemistry, University of California, Los Angeles, CA, Oct. 26, **1998**.
51. From Dative Bonding Theory to Chemical Toxicology  
**Rainer Glaser**  
Host: Prof. Sunjun Su, Departmental Colloquium, Department of Chemistry, [Southwest] Missouri State University ([S]MSU), Springfield, MO, Oct. 12, **1998**.
50. **Mid-Atlantic Tour 1998:** Design and Realization of Highly Anisotropic Organic Materials  
**Rainer Glaser**  
Host: Prof. Andrew Evans, Organic Chemistry Seminar, Department of Chemistry and Biochemistry, University of Delaware, NE, Delaware, Sept. 29, **1998**.
49. **Mid-Atlantic Tour 1998:** Design and Realization of Highly Anisotropic Organic Materials  
**Rainer Glaser**  
Host: Prof. Debra L. Mohler, Chemistry Colloquium, Department of Chemistry, West Virginia University, Morgantown, WV, Sept. 28, **1998**.
48. **Mid-Atlantic Tour 1998:** Cation-Dinitrogen Interactions. From Studies of Dative Bonding to Problems in Chemical Toxicology  
**Rainer Glaser**  
Host: Prof. Larry Romsted, Chemistry Colloquium, Department of Chemistry, Rutgers, The State University of New Jersey, New Brunswick (Piscataway), NJ, Sept. 25, **1998**.
47. **Mid-Atlantic Tour 1998:** Design and Realization of Highly Anisotropic Organic Materials  
**Rainer Glaser**  
Host: Prof. Daniel E. Falvey, Organic Chemistry Seminar, Department of Chemistry and Biochemistry, University of Maryland, College Park, MD, Sept. 24, **1998**.
46. **Mid-Atlantic Tour 1998:** Cation-Dinitrogen Interactions. From Studies of Dative Bonding to Problems in Chemical Toxicology  
**Rainer Glaser**  
Host: Prof. Thomas Lectka, Chemistry Colloquium, Department of Chemistry, Johns Hopkins University, Baltimore, MD, Sept. 22, **1998**.
45. Cation-Dinitrogen Interactions: Vom Studium der Dativen Bindung zu Problemen in der Chemischen Toxikologie



**Rainer Glaser**

Host: Prof. Ulrich Groth, Organic Chemistry Seminar, Institut für Organische Chemie, University Konstanz, Konstanz, Germany, Aug. 6, **1998**. Vortragsankündigung

44. Ferroelectric Crystalline Organic Materials

**Rainer Glaser**

Host: Prof. Olaf Wiest, Chemistry and Biochemistry Department Colloquium, Department of Chemistry and Biochemistry, University of Notre Dame, Notre Dame, IN, Feb. 12, **1998**. Schedule

43. Dielectric Crystalline Organic Materials

**Rainer Glaser**

Host: Prof. Clifford E. Dykstra, Department of Chemistry, IUPUI, Indianapolis, IN, Feb. 11, **1998**. Schedule

42. Highly-Dipole Parallel-Aligned Crystalline Molecular Organic Materials. Design and Realization of Prototypes

**Rainer Glaser**

Host: Prof. Nicholas Leventis, Department of Chemistry, University of Missouri-Rolla, Sept. 22, **1997**. Sponsored by the South Central Missouri Section of the American Chemical Society. Schedule

41. Highly-Dipole Parallel-Aligned Crystalline Molecular Organic Materials. Design and Realization of Prototypes

**Rainer Glaser**

Host: Prof. Steve Scheiner, Department of Chemistry and Biochemistry, Southern Illinois University, Carbondale, IL, Aug. 29, **1997**. Schedule

40. **JSPS Sponsored Japan Tour 1997:** Topological Electron Density Analysis of Electron-Poor Bismuth Clusters

**Rainer Glaser**

Host: Prof. Noro, Faculty of Sciences, University of Hokkaido, Sapporo 060, Japan, July 24, **1997**.

39. **JSPS Sponsored Japan Tour 1997:** Highly Dipole Aligned Organic Molecular Crystalline Materials for Nonlinear Optics

**Rainer Glaser**

Host: Prof. Kazuhiko Ichikawa, Graduate School for Environmental Earth Studies, University of Hokkaido and The Japan Chemical Society, Sapporo 060, Japan, July 23, **1997**.

38. **JSPS Sponsored Japan Tour 1997:** The Cation-Dinitrogen Interaction. From Dative Bonding Theory to Problems in Chemical Toxicology

**Rainer Glaser**

Host: Prof. Suehiro Iwata, Institute for Molecular Science, Myodaiji, Okazaki 444, Japan, July 18, **1997**.

37. **JSPS Sponsored Japan Tour 1997:** The Cation-Dinitrogen Interaction. From Dative Bonding Theory to Problems in Chemical Toxicology

**Rainer Glaser**

Host: Prof. Hiroshi Kashiwagi, Department of Biochemical Engineering and Science, Faculty of Computer Science and Systems Engineering, Kyushu Institute of Technology, Kwazu 680-4, Iizuka 820, Japan, July 11, **1997**.

36. **JSPS Sponsored Japan Tour 1997:** DNA Chemistry Related to Environmental Chemistry

- Rainer Glaser**  
Host: Prof. Kazuhiko Ichikawa, Graduate School for Environmental Earth Studies, University of Hokkaido, Division of Material Science, Sapporo 060, Japan, July 8, **1997**.
35. Fruitful Interplay Between Theory and Experiment  
**Rainer Glaser**  
Host: Prof. Charles Greenlief, Sr., Department of Chemistry, Emporia State University, Emporia, KS, March 31, **1997**.
34. Chemie Anisotroper Elektrostatischer Medien  
**Rainer Glaser**  
Host: Prof. Hopf, Institut für Organische Chemie, Technische Universität Carolo-Wilhelmina Braunschweig, Braunschweig, Germany, Dec. 18, **1996**.
33. Design and Realization of Highly Dipole-Aligned Molecular Crystals for Nonlinear Optics  
**Rainer Glaser**  
Host: Prof. Andrew Holder, Chemistry Colloquium, Department of Chemistry, University of Missouri, Kansas City, MO, Sept. 5, **1996**.
32. **England-Germany-Switzerland Tour 1995:** Design und Realisation Neuer Organischer Nichtlinearer Optischer Materialien  
**Rainer Glaser**  
Host: Prof. Schmutzler and Prof. Grahn, Materialwissenschaftliches Kolloquium, Institute für Organische und Anorganische Chemie, Technische Universität Carolo-Wilhelmina Braunschweig, Braunschweig, Germany, Dec. 21, **1995**.
31. **England-Germany-Switzerland Tour 1995:** Design und Realisation Neuer Organischer Nichtlinearer Optischer Materialien  
**Rainer Glaser**  
Host: Prof. Nesper, Anorganische Chemie Kolloquium, Laboratorium für Anorganische Chemie, Eidgenössische Technische Hochschule, Zürich, Switzerland, Dec. 19, **1995**.
30. **England-Germany-Switzerland Tour 1995:** Design und Realisation Neuer Organischer Nichtlinearer Optischer Materialien  
**Rainer Glaser**  
Host: Prof. Retey, Organisch-Chemisches Kolloquium, Institut für Organische Chemie und Biochemie, Universität Karlsruhe, Karlsruhe, Germany, Dec. 18, **1995**.
29. **England-Germany-Switzerland Tour 1995:** Intra- und Intermolecular Nicht-Synergistische Bindung  
**Rainer Glaser**  
Host: Prof. Manfred Regitz, Organisch-Chemisches Kolloquium, Institut für Organische Chemie, Universität Kaiserslautern, Kaiserslautern, Germany, Dec. 15, **1995**.
28. **England-Germany-Switzerland Tour 1995:** Design und Realisation Neuer Organischer Nichtlinearer Optischer Materialien  
**Rainer Glaser**  
Host: Prof. Kessler, Organisch-Chemisches Kolloquium, Institut für Organische Chemie, Technische Universität München, München, Germany, Dec. 14, **1995**.
27. **England-Germany-Switzerland Tour 1995:** Design und Realisation Neuer Organischer Nichtlinearer Optischer Materialien  
**Rainer Glaser**

- Host: Prof. Gerhard Maas, Organisch-Chemisches Kolloquium, Institut für Organische Chemie, Universität Ulm, Ulm, Germany, Dec. 13, **1995**.
26. **England-Germany-Switzerland Tour 1995:** Design and Realisation of Novel Organic Materials for Nonlinear Optics  
**Rainer Glaser**  
Host: Prof. Lickess, Inorganic Chemistry Colloquium, Department of Chemistry, Imperial College of Science and Technology, South Kensington, London, UK, Dec. 8, **1995**.
25. **England-Germany-Switzerland Tour 1995:** Intra- and Intermolecular Non-Synergistic Bonding  
**Rainer Glaser**  
Host: Prof. Paul Popelier, Theory Colloquium, Department of Chemistry, University Chemistry Laboratory, Cambridge, UK, Dec. 7, **1995**.
24. The Shortest Route to The New Is A Determined Attempt to Understand What Is Known: Diazonium Ions and Their Phosphorus Analogues  
**Rainer Glaser**  
Host: Prof. Laird, Kansas University, Laurence, KS, Oct. 10, **1995**.
23. Intra- and Intermolecular Non-Synergistic Bonding  
**Rainer Glaser**  
Host: Prof. Buszek, Kansas State University, Manhattan, KS, April 11, **1995**.
22. Intra- and Intermolecular Non-Synergistic Bonding  
**Rainer Glaser**  
Host: Prof. Berkowitz, University of Nebraska, Lincoln, NE, April 10, **1995**.
21. Spin Polarization versus Spin Delocalization  
**Rainer Glaser**  
Host: Departmental Dynamite Seminar, University of Missouri, Columbia, MO, Nov. 22, **1994**.
20. Fragmentübertragungsenergien und Nicht-Synergetische Wasserstoffbrückenbindung in Watson-Crick DNA Basenpaaren  
**Rainer Glaser**  
Host: Prof. Steglich, Universität München, May 6, **1994**.
19. Some Thoughts on Chemical Bonding  
**Rainer Glaser**  
Host: Organic Chemistry Day, Univ. of Missouri, Columbia, MO, April 24, **1994**.
18. A New Bonding Model for Diazonium Ions. Topological Electron Density Analysis, Experimental Tests, and Predictions  
**Rainer Glaser**  
Host: Prof. J. Fishbein, Wake Forest University, Salem, NC, March **1994**.
17. **Germany Spring Tour 1994:** Fragmentübertragungsenergien und Nicht-Synergetische Wasserstoffbrückenbindung in Watson-Crick DNA Basenpaaren  
**Rainer Glaser**  
Host: Prof. Paul von Rague-Schleyer, Universität Erlangen-Nürnberg, Computational Chemistry Center, Feb. 18, **1994**.
16. **Germany Spring Tour 1994:** Fragmentübertragungsenergien und Nicht-Synergetische Wasserstoffbrückenbindung in Watson-Crick DNA Basenpaaren

- Rainer Glaser**  
Prof. Wamhoff, Universität Bonn, Feb. 16, **1994**.
15. **Germany Spring Tour 1994:** Deaminierungschemie und Deren Rolle in der Alkylierung von DNA  
**Rainer Glaser**  
Host: Prof. Frohn, Universität Duisburg, Feb. 15, **1994**.
14. Fragment Transfer Energies and Non-Synergistic Bonding in Watson Crick Model Nucleic Acid Pairing  
**Rainer Glaser**  
Host: Prof. Talaty, Wichita State University, Emporia, KS, Jan. 26, **1994**.
13. **Germany Summer Tour 1993:** Elektronendichteanalyse der Bindungsverhältnisse in den Phosphor-Analogen von Aromatischen und Aliphatischen Diazonium Ionen  
**Rainer Glaser**  
Host: Prof. Herbert W. Roesky, Institut für Anorganische Chemie, Universität Göttingen, June 9, **1993**.
12. **Germany Summer Tour 1993:** Neue Entwicklungen in der Topologischen Analyse von Elektronendichte und Spindichte Verteilungen. Radikale, Quasi-Aromatic Organometallische Komplexe, und Nicht-Synergetische Bindung in Nucleinsäure Dimeren  
**Rainer Glaser**  
Host: Prof. R. Gleiter, Universität Heidelberg, June 7, **1993**.
11. Germany Summer Tour 1993: Highlights neuerer Entwicklungen und Anwendungen Topologischer Elektronendichte und Spindichte Analysen  
**Rainer Glaser**  
Host: Prof. Gernot Frenking, Universität Marburg, June 1, **1993**.
10. **Germany Summer Tour 1993:** Neue Entwicklungen in der Topologischen Analyse von Elektronendichte und Spindichte Verteilungen. Radikale, Organometallische Komplexe, und Nicht-Synergetische Bindung in Nucleinsäure Dimeren  
**Rainer Glaser**  
Host: Prof. Wilhelm Maier, Max-Planck Institut für Kohlenforschung, Mülheim an der Ruhr, Germany, May 27, **1993**.
9. Intra- und Intermolekulare Nicht-Synergistische Bindung  
**Rainer Glaser**  
Host: Prof. G. Bringmann, Universität Würzburg, Feb. 5, **1993**.
8. Intra- and Intermolecular Non-Synergistic Bonding  
**Rainer Glaser**  
Host: Departmental Dynamite Seminar, University of Missouri, Columbia, MO, Dec. 8, **1992**.
7. Experimental and Theoretical Studies of Deamination Reactions  
**Rainer Glaser**  
Host: University of Missouri-St. Louis, MO, Oct. 26, **1992**.
6. A New Bonding Model for Diazonium Ions: Theory and Experiment  
**Rainer Glaser**  
Host: Washington University, St. Louis, MO, Sept. 24, **1992**.
5. Neue Experimentelle und Theoretische Untersuchungen an aliphatischen Diazonium Ionen und den Phosphor Analogen

### **Rainer Glaser**

Host: Prof. U. Siehl, Universität Tübingen, Germany, July 1, **1992**.

4. Recent Studies in Topological Electron Density Analysis

### **Rainer Glaser**

Host: Physics Colloquium, University of Missouri-Columbia, Sept. 11, **1991**.

3. Population Analysis. A Comparative Analysis between Basis Set Partitioning Techniques and Density Integration Methods

### **Rainer Glaser**

Host: University of Missouri-Kansas City, Jan. 23, **1990**.

2. Theoretical Study of the Stereochemistry of Metalated Oximes

### **Rainer Glaser**

Host: Organic Chemistry Colloquium, University of California, Berkeley, April 16, **1987**.

1. The Unimolecular Dediazonation of Ethynyldiazonium Ion

### **Rainer Glaser**

Host: Prof. M. Hanack, Universität Tübingen, Germany, June 21, **1986**.

## **G. Contributed Lectures**

Lectures are numbered chronologically and listed in reverse chronological order. Of the papers listed, many were presented at meetings of the American Chemical Society (ACS) and the presentations were made in a variety of divisions including Organic Chemistry, Physical Chemistry, Computers in Chemistry, Inorganic Chemistry, Toxicology, and Biological Chemistry. The other half of the lectures were presented at regional, national, and international non-ACS conferences. Presenter(s) underlined, **corresponding authors(s)** in bold face.

153. Perfect dipole parallel alignment in ferroelectric crystals of methoxyphenyl substituted acetophenone azines, (MeO-Ph, Y)-azines: an improved design strategy for highly nonlinear optical (NLO) materials

Harmeet Bhoday, Nathan Knotts, and **Rainer Glaser**

Lecture, Division of Organic Chemistry, ACS Midwest/Great Lakes Regional Meeting, St. Charles Convention Center, St. Louis, MO, Oct. 18-21, **2023**. *In-Person*.

152. Ferroelectric crystals of conjugated donor-acceptor para-substituted 1,4-diphenyl-1,3-butadienes: New dipole-parallel aligned NLO active materials

Justin Nulsen, Harmeet Bhoday, and **Rainer Glaser**

Lecture, Division of Organic Chemistry, ACS Midwest/Great Lakes Regional Meeting, St. Charles Convention Center, St. Louis, MO, Oct. 18-21, **2023**. *In-Person*.

151. Rubisco-Mimetic CO<sub>2</sub> Capture Systems. Theoretical and Experimental Studies of Carbamylation Using Fluorinated Tetrapeptides

Brian Jameson and **Rainer Glaser**

Lecture, Division of Organic Chemistry, ACS Midwest/Great Lakes Regional Meeting, St. Charles Convention Center, St. Louis, MO, Oct. 18-21, **2023**. *In-Person*.

150. Polar and non-polar stacking of perfectly aligned parallel belowamphiphile monolayers (PBAMs) of (PhO, F)-azine. The interplay of non-covalent interlayer interactions and unit cell polarity

Harmeet Bhoday and **Rainer Glaser**

- Contributed Lecture, Division of Organic Chemistry, Symposium on Molecular Recognition & Self-Assembly, ACS National Meeting, San Francisco, CA, Aug. 14, **2023**. *In-Person*.
149. Rotation-Inversion of Tertiary Carbamates. Synergy of VT NMR Measurements and Computational Analysis of Multi-Paths Isomerization  
Brian Jameson and **Rainer Glaser**  
Lecture, Division of Organic Chemistry, ACS Midwest Regional Meeting, University of Iowa, Iowa City, IA, Oct. 19-21, **2022**. *In-Person*.
148. Computational analysis of rotational isomers of *N*-(2,2,2-trifluoroethyl) carbamates observed by <sup>13</sup>C-NMR spectroscopy  
Brian Jameson and **Rainer Glaser**  
Contributed Lecture, Division of Organic Chemistry, 2021 ACS Regional Meeting, Missouri State University, Springfield, MO, Oct. 20-22, **2021**. *In-Person*.
147. Computational ONIOM Investigation of the Thermochemical Parameters of Rubisco Activation and Carbamylation Reactions  
Kari Knobbe, Joseph Schell, and **Rainer Glaser**  
Contributed Lecture, Symposium on Biophysical Chemistry, 2021 ACS Regional Meeting, Missouri State University, Springfield, MO, Oct. 20-22, **2021**. *In-Person*.
146. Bridging the gap between research and secondary education: Using colorimetry to teach titration in a high school setting  
Sara McCauley and **Rainer Glaser**  
Contributed Lecture, Division of Chemistry Education, 2021 ACS Regional Meeting, Missouri State University, Springfield, MO, Oct. 20-22, **2021**. *In-Person*.
145. Hysteresis loops in 3D color-space of oscillating reactions: Exploration of generality and mechanistic interpretations  
Sara McCauley, Ethan Hay, and **Rainer Glaser**  
Contributed Lecture, Division of Inorganic Chemistry, 2021 ACS National Meeting, Atlanta, GA, Aug. 25, **2021**. *Oral Virtual on 8/25*.
144. DFT investigation into the role of outer-sphere coordination in the pH dependence of the ferriin reduction in the iron-catalyzed Belousov-Zhabotinsky reaction  
Sara McCauley and **Rainer Glaser**  
Contributed Lecture, Division of Inorganic Chemistry, 2021 ACS National Meeting, Atlanta, GA, Aug. 25, **2021**. *Oral Virtual on 8/25*.
143. Your Body's Response to Stress: The Enzymatic Oxidation of Deoxycorticosterone by Cytochrome P450 CYP11B2  
Kari Knobbe, Joseph Schell, and **Rainer Glaser**  
Contributed Lecture, Division of Chemical Toxicology, 2021 ACS National Meeting, Atlanta, GA, Aug. 23 & 24, **2021**. *Sci-Mix in Person on 8/23; Oral Virtual on 8/24*.
142. Depression of alkylammonium pK<sub>a</sub> in Rubisco-mimetic CO<sub>2</sub> capture systems using fluorinated alkyl substituents  
Brian Jameson and **Rainer Glaser**  
Contributed Lecture, Division of Organic Chemistry, 2020 Midwest Regional Meeting, Missouri State University, Springfield, MO, Oct. 21-22, **2020**.
141. Multilevel Computational Study of Enzymatic Oxidation of Deoxycorticosterone by Cytochrome P450 (CYP11B2)  
Kari Knobbe, Joseph Schell, and **Rainer Glaser**



- Contributed Lecture, Division of Computational Chemistry, 2020 Midwest Regional Meeting, Missouri State University, Springfield, MO, Oct. 21-22, **2020**.
140. Specific solvation alters the conformer preference of diphenylalanines and enables polar crystallization. Structural studies and GIAO calculations explain NMR measurements  
Christina Arens, Kaidi Yang, Fabio Gallazzi, and **Rainer Glaser**  
Contributed Lecture, Division of Organic Chemistry, 2020 Midwest Regional Meeting, Missouri State University, Springfield, MO, Oct. 21-22, **2020**.
  139. Origins of shape-stable hysteresis loops in the cerium-catalyzed Belousov-Zhabotinsky oscillating reaction and mechanistic implications  
Sara McCauley, Christopher Dempsey, Joseph Schell, and **Rainer Glaser**  
Contributed Lecture, Division of Analytical Chemistry, 2020 Midwest Regional Meeting, Missouri State University, Springfield, MO, Oct. 21-22, **2020**.
  138. Measuring Ethics Knowledge among Chinese Students in a Graduate Chemistry Seminar  
Kaidi Yang, Kathryn Northcut, Alanna Krolikowski, Cun-Yun Guo, and **Rainer Glaser**  
Contributed Lecture, 2019 Midwest Regional Meeting, Wichita State University, Wichita, KS, Oct. 17, **2019**.
  137. Origin of the pH dependence of ferriin reduction in the iron-catalyzed Belousov-Zhabotinsky reaction. Density functional studies of structures of ferroin and ferriin in aggregates with hydrogensulfate and sulfuric acid  
Sara McCauley and **Rainer Glaser**  
Contributed Lecture, 2019 Midwest Regional Meeting, Wichita State University, Wichita, KS, Oct. 17, **2019**.
  136. Exploration of the conformational space of small alkylamines and alkylcarbamic acids in aqueous solution. Using a Boltzmann statistical analysis to improve the accuracy of the thermochemical data of the CO<sub>2</sub> capture reaction  
Joseph Schell and **Rainer Glaser**  
Contributed Lecture, Symposium on "Chemistry from the Computer: Applications", 2018 Midwest Regional Meeting, Iowa State University, Ames, IA, Oct. 21-23, **2018**.
  135. Learning to read spectra: Teaching decomposition with Excel in a scientific writing course  
**Rainer Glaser** and Andrew Muelleman  
Contributed Lecture, Symposium on "Research at the Interface of Chemistry & Mathematics Education", 2018 Biennial Conference on Chemical Education, Notre Dame, IN, Aug. 1, **2018**.
  134. Global adaptation of a research-oriented Scientific Writing course: From Missouri to China  
**Rainer Glaser** and Kaidi Yang  
Contributed Lecture, Symposium on "Research-based Activities in Chemistry Classroom & Laboratory", 2018 Biennial Conference on Chemical Education, Notre Dame, IN, Aug. 1, **2018**.
  133. Toward quantitative H<sub>2</sub>PO<sub>4</sub><sup>-</sup> sensing: Simultaneous determination of all species concentrations in multiequilibria of aqueous solutions containing dihydrogen phosphate  
Joseph Schell, Ethan Zars, Carmen Chicone, and **Rainer Glaser**  
Contributed Lecture, Symposium on "Current State of Environmental Contamination Research: Theory & Experiment", Division of Environmental Chemistry, 255<sup>th</sup> ACS National Meeting, New Orleans, LA, March 22, **2018**.
  132. Learning to Read Spectra: Teaching Deconvolution with Excel in a Scientific Writing Course

- Rainer Glaser** and Andrew Muelleman  
 Contributed Lecture, Symposium on "Chemistry Learning and Math Learning: Which is the Cart & Which is the Horse?", Division of Chemical Education, 255<sup>th</sup> ACS National Meeting, New Orleans, LA, March 20, **2018**.
131. Computational and experimental study of CO<sub>2</sub> capture by alkylamines  
**Kaidi Yang**, **Joseph Schell**, and **Rainer Glaser**  
 Contributed Lecture, Symposium on "Carbon Dioxide Conversion and Artificial Photosynthesis", Division of Energy and Fuels, 255<sup>th</sup> ACS National Meeting, New Orleans, LA, March 19, **2018**.
  130. Global adaptation of a Scientific Writing course: From Missouri to China  
**Kaidi Yang**, **Rainer Glaser** and Cun-Yue Guo  
 Contributed Lecture, Symposium on "International Perspectives of Chemistry Education Teaching and Practice", Division of Chemical Education, 255<sup>th</sup> ACS National Meeting, New Orleans, LA, March 19, **2018**.
  129. Gas-phase infrared spectrum of toluene: Conformation dependence of vibrational anharmonicities of a free methyl rotor  
**Rainer Glaser**, Xuejuan Yang, Aigen Li, J. Zhong,  
 Contributed Lecture, Div. of Phys. Chem. 2015 ACS Regional Meeting, St. Joseph, MO, Oct. 23, **2015**.
  128. Teaching scientific writing and scientific peer review in the United States and in China  
**Rainer E. Glaser**, Kaidi Yang, C.-Y. Guo, Y. Guo  
 Contributed Lecture, Div. of Chem. Educ. 2015 ACS Regional Meeting, St. Joseph, MO, Oct. 23, **2015**.
  127. Student-Centered Learning in a Writing-Intensive Upper-Division Undergraduate Seminar: An Assignment-Based Curriculum to Teach Scientific Writing and Peer Review  
**Rainer Glaser**, Lindsey Ellis, Megan Anderson, and **Kaidi Yang**  
 Contributed Lecture, Symposium on "Student-Centered Learning with a Focus on Improving Process Skills in the Classroom and Laboratory", 2014 Biennial Conference on Chemical Education, Grand Valley State University, Allendale, MI, Aug. 6, **2014**.
  126. Integrating chemistry and mathematics education. Cross-disciplinary research projects are excellent seed events  
**Rainer E. Glaser**, Carmen Chicone, Marco A. Delarosa, Ethan Zars, Cory Camasta, Mary Jost  
 Contributed Lecture, Symposium on "Interdisciplinary Chemistry Courses: Integrating Chemistry and ...", 2014 Biennial Conference on Chemical Education, Grand Valley State University, Allendale, MI, Aug. 4, **2014**.
  125. Teaching chemistry in the context of a cross-disciplinary research seminar  
**Nazneen Ali**, **Rainer E. Glaser**, Jennifer Hart, Eric Ludwig, Jennifer Fellabaum, George Smith, Francis Schmidt, Dix Pettey, and Carmen Chicone  
 Contributed Lecture, Symposium on "Interdisciplinary Chemistry Courses: Integrating Chemistry and ...", 2014 Biennial Conference on Chemical Education, Grand Valley State University, Allendale, MI, Aug. 4, **2014**.
  124. Biomimetic approaches to reversible CO<sub>2</sub> capture from air. *N*-Methylcarbaminic acid formation in Rubisco-inspired models  
**Rainer Glaser**, Paula O. Castello-Blindt, and Jian Yin

- Contributed Lecture, Symposium on Materials and Technologies for CO<sub>2</sub> Capture, Sequestration, and Conversion, Division of Energy and Fuels, 246<sup>th</sup> ACS National Meeting, Indianapolis, IN, Indiana Convention Center, Room 125, 4:30 pm, Sept. 9, **2013**.
123. Teaching organic chemistry in the context of a writing-intensive upper-division undergraduate seminar: An assignment-based curriculum to teach scientific writing and peer review  
**Rainer E. Glaser**  
 Contributed Lecture, Division of Chemical Education, 246<sup>th</sup> ACS National Meeting, Indianapolis, IN, Indianapolis Marriott Downtown, Indiana Ballroom C/D, 4:25 pm, Sept. 10, **2013**.
  122. Are the carriers of the UIE bands aromatic or aliphatic? Gas phase infrared spectroscopy of polycyclic aromatic hydrocarbons (PAHs) and of their monomethyl derivatives  
**Xuejuan Yang**, **Rainer Glaser**, Aigen Li, and Jianxin Zhong  
 Contributed Lecture, 6<sup>th</sup> Cosmic Dust Meeting, Kobe, Japan, Aug. 5-9, **2013**.
  121. Teaching Chemistry in the Context of a Cross-Disciplinary Research Seminar  
**Rainer E. Glaser**, Jennifer Hart, Eric Ludwig, Jennifer Fellabaum, George Smith, Francis Schmidt, Dix Pettey, and Carmen Chicone  
 Contributed Lecture, Eurovariety 2013, 5<sup>th</sup> Eurovariety in Chemistry Education Conference, University of Limerick, Ireland, July 5, **2013**. PDF.
  120. Mechanistic models for LAH reductions of nitriles. Aggregation effects of Li-cation and AlH<sub>3</sub> on imide-enamide equilibria  
Laura Ulmer, Stephanie Coyle, and **Rainer Glaser**  
 Contributed Lecture, Division of Organic Chemistry, 2012 ACS Midwest Regional Meeting, Omaha, NE, Oct. 26, **2012**.
  119. Socializing undergraduate STEM students for cross-disciplinary research and collaboration  
**Rainer E. Glaser**, Jennifer Hart, Jennifer Fellabaum, and Eric Ludwig  
 Contributed Lecture, Division of Chemical Education, 2012 ACS Midwest Regional Meeting, Omaha, NE, Oct. 26, **2012**.
  118. Improving efficiency of CH<sub>3</sub>I containing binary pesticides. Ab initio study of iodine bonding of CH<sub>3</sub>I with pyridine and chloropyridine  
Kaitlan Prugger and **Rainer Glaser**  
 Contributed Lecture, Division of Organic Chemistry, 2012 ACS Midwest Regional Meeting, Omaha, NE, Oct. 25, **2012**.
  117. Mechanism of the Belousov-Zhabotinsky Oscillating Reaction. Ab initio direct dynamics study of the bromous acid anhydride (OBr-O-BrO) to bromic hypobromous anhydride (Br-O-BrO<sub>2</sub>) rearrangement  
Cory Camasta and **Rainer Glaser**  
 Contributed Lecture, Division of Physical Chemistry, 2012 ACS Midwest Regional Meeting, Omaha, NE, Oct. 25, **2012**.
  116. Promoting Excellence in WI Teaching: Self Reflective Perspectives from a Working Group of Seasoned WI Faculty  
Bonnie Selting (Coordinator, Campus Writing Program), Wayne Brekhuis (Assoc. Prof., Sociology), Tim Safranski (Assoc. Prof., Animal Sciences), Rainer Glaser (Prof., Chemistry), Deanna Sharpe (Assoc. Prof., Personal Financial Planning), Marty Townsend (Assoc. Prof., English); Moderator: Jenna Kammer, Instructional Designer for e-Learning, Human Environmental Sciences.

- The Celebration of Teaching, University of Missouri, Columbia, MO, May 16, **2012**.
115. QCI//DFT studies of heterocyclic di-*N*-oxides with antitumor activity: Mechanistic insights from tirapazamine analogs  
Jian Yin, **Rainer Glaser**, and Kent Gates  
Contributed Lecture, Division of Organic Chemistry, 243<sup>rd</sup> National Meeting, San Diego, CA, March 27, **2012**.
114. Iodine bonding stabilizes methyl iodide in Midas pesticide  
Kaitlan Prugger and **Rainer Glaser**  
Contributed Lecture, Division of Organic Chemistry, 2011 Joint ACS Midwest / Great Lakes Regional Meeting, St. Louis, MO, Oct. 21, **2011**.
113. Fe(II)/MAO catalyzed olefin polymerization: Oxophilicity of cyclic and acyclic aluminoxane ligands in Fe(II) Complexes  
**Rainer Glaser** and Xinsen Sun  
Contributed Lecture, Division of Organic Chemistry, 2011 Joint ACS Midwest / Great Lakes Regional Meeting, St. Louis, MO, Oct. 21, **2011**.
112. Iodine Lewis acid catalysis in organic chemistry: Iodine bonding between molecular iodine and triethyl orthoformate  
Stephanie Coyle and **Rainer Glaser**  
Contributed Lecture, Division of Organic Chemistry, 2011 Joint ACS Midwest / Great Lakes Regional Meeting, St. Louis, MO, Oct. 20, **2011**.
111. QCI/DFT Studies of Metabolic Pathways of Hypoxia-Selective Heterocyclic Di-*N*-Oxide Antitumor Agent Tirapazamine (TPZ) and Analogs  
Jian Yin, **Rainer Glaser**, and Kent Gates  
Contributed Lecture, Division of Chemical Toxicology, ACS National Meeting, Denver, CO, Aug. 28 - Sept. 1, **2011**.
110. Methyl Iodide: A Safe Alternative for Methyl Bromide?  
Kaitlan Prugger and **Rainer Glaser**  
Presentation, Undergraduate Research Mentorship Presentation Luncheons, Columbia, MO, July 29, **2011**.
109. Mathematics in the Life Sciences: Developing a Best Practice  
Jennifer Fellabaum, **Jeni Hart**, and **Rainer Glaser**  
Presentation, ASQ Advancing the STEM Agenda in Education, the Workplace and Society, University of Wisconsin-Stout, July 20, **2011**.
108. Density functional study: Free energies and vibrational frequencies of heme iron(III) intermediates in nitric oxide dioxygenases (NOD) process  
Jian Yin and **Rainer Glaser**  
Contributed Lecture, 45<sup>th</sup> ACS Midwest Regional Meeting, Wichita, KS, Oct. 27-30, **2010**.
107. Beta-Aminoacrylamide. Ab Initio Study of a Fluxional Diamine with Nonlocal Anharmonicities and Extremely-Low-Barrier Double-Well  
**Rainer Glaser**, Yang Liu, Wei Wycoff, and Stephen Montgomery-Smith  
Contributed Lecture, Midwest Astrochemistry Meeting, Urbana, IL, Nov. 6-7, **2009**.
106. Unprecedented stabilization of acyclic keto tautomers of fructosamine derivatives in crystalline state and solutions  
Valeri Mossine, **Thomas Mawhinney**, and **Rainer Glaser**

- Contributed Lecture, Division of Carbohydrate Chemistry, 237<sup>th</sup> ACS National Meeting, Salt Lake, UT, March 22-26, **2009**.
105. Prebiotic Synthesis of Adenine. Hydrogen Atom Tunneling in the Virtual [1,7]-Sigmatropic Rearrangement of Monocyclic HCN-Pentamer  
**Rainer Glaser**, Jian Yin, Jingjing Zheng, Donald G. Truhlar  
Contributed Lecture, Midwest Astrochemistry Meeting, Urbana, IL, Nov. 7-8, **2008**.
104. Solid state electronic structures of organic semiconductors based on 1,4-diphenylbutadienes and their 2,3-diaza derivatives  
**Rainer Glaser** and Yongqiang Sui  
Contributed Lecture, Division of Organic Chemistry, 231<sup>st</sup> ACS National Meeting, Atlanta, GA, March 26-30, **2006**.
103. Nitrosative guanosine deamination: 17O-Labeling studies as integral accompaniment to 18O-studies  
**Rainer Glaser** and Papiya Majumdar  
Contributed Lecture, Division of Organic Chemistry, 230<sup>th</sup> ACS National Meeting, Washington, D.C., Aug. 28 - Sept. 1, **2005**.
102. Chemistry Is in the News: Engaging chemistry and policy through the news  
**Rainer E. Glaser** and Kathleen M. Carson  
Contributed Lecture, Division of Chemical Education, 229<sup>th</sup> ACS National Meeting, San Diego, CA, March 14, **2005**.
101. Lateral synthones in crystal engineering: 1,4-Diphenylbutadienes and their azine analogs  
**Rainer Glaser** and Yongqiang Sui  
Contributed Lecture, Division of Organic Chemistry, 229<sup>th</sup> ACS National Meeting, San Diego, CA, March 13, **2005**.
100. Crystal Engineering with arene-arene interactions and halogen bonding to achieve perfect dipole-parallel alignment in molecular crystals  
**Rainer Glaser** and Nathan Knotts  
Contributed Lecture, Division of Organic Chemistry 229<sup>th</sup> ACS National Meeting, San Diego, CA, March 13, **2005**.
99. Nitrosative DNA base deamination: What can we learn from gas phase ion chemistry?  
**Rainer Glaser**, Ming Qian, Papiya Majumdar, Hong Wu, and Nathan Leigh  
Contributed Lecture, Division of Chemical Toxicology, 228<sup>th</sup> ACS National Meeting, Philadelphia, PA, Aug. 22-26, **2004**.
98. Exploring the competition-collaboration continuum in collaborative group work  
**Rainer Glaser**, Brian Hodgen, and Kathleen Carson  
Contributed Lecture, "Learning Centered Approaches Across the Curriculum" Symposium, Dr. Richard S. Moog and James N. Spencer, Organizers, Division of Chemical Education, 228<sup>th</sup> ACS National Meeting, Philadelphia, PA, Aug. 22-26, **2004**.
97. Internationalization at home through Chemistry is in the News  
**Rainer Glaser**, Kathleen Carson, and Brian Hodgen  
Contributed Lecture, "Learning Centered Approaches Across the Curriculum" Symposium, Dr. Richard S. Moog and James N. Spencer, Organizers, Division of Chemical Education, 228<sup>th</sup> ACS National Meeting, Philadelphia, PA, Aug. 22-26, **2004**.
96. Structure-isomeric G-to-G cross-links  
Ming Qian and **Rainer Glaser**

- Division of Biological Chemistry, CERM 2004, 36<sup>th</sup> ACS Central Regional Meeting, Indianapolis, IN, June 2-5, **2004**.
95. 18O-Labeling study of nitrosative guanosine deamination: Identification of the oxanosine precursors  
Sundeep Rayat, Papiya Majumdar, Peter Tipton, and **Rainer Glaser**  
Division of Biological Chemistry, CERM 2004, 36<sup>th</sup> ACS Central Regional Meeting, Indianapolis, IN, June 2-5, **2004**.
94. Chemistry is in the News. Preparation for Science Communication  
**Rainer Glaser**, Zhengyu Wu, Kathleen Carson, Brian Hodgen, and John Sui  
Division of Chemistry Education, Symposium on NSF Sponsored Programs, David Collard, Organizer, SERMACS 2003, 55th ACS Southeast Regional Meeting, Renaissance Atlanta Hotel, Atlanta, GA, Nov. 17, **2003**.
93. Experimental demonstration of a new mechanism for dG-to-dG crosslink formation  
**Rainer Glaser** and Ming Qian  
Division of Toxicology, 226<sup>th</sup> ACS National Meeting, New York, NY, Sept. 7-11, **2003**.
92. Pyrimidine ring-opening in nitrosative guanosine deamination: Experimental evidence from <sup>18</sup>O-labeling studies  
**Rainer Glaser**, Sundeep Rayat, and Papiya Majumdar  
Division of Toxicology, 226<sup>th</sup> ACS National Meeting, New York, NY, Sept. 7-11, **2003**.
91. College Science Education as Preparation for Science Communication  
**Rainer E. Glaser**, Zhengyu Wu, and Susan Schelble  
Contributed lecture in the "Communicating Chemistry" Symposium, C. Kotz & Leonard Fine, Organizers, Division of Chemical Education, 226th ACS National Meeting, New York, NY, Sept. 7-11, **2003**.
90. 5-Cyanoimino-4-imidazolecarboxamide and nitrosative guanine deamination: Experimental evidence for pyrimidine ring-opening during deamination  
**Rainer Glaser** and Ming Qian  
Division of Toxicology, 224<sup>th</sup> ACS National Meeting, Boston, MA, Aug. 18-22, **2002**.
89. Deamination of cytosine revisited: Experimental evidence for uracil formation by way of ring-opening and recyclization  
**Rainer Glaser** and Sundeep Rayat  
Division of Toxicology, 224<sup>th</sup> ACS National Meeting, Boston, MA, Aug. 18-22, **2002**.
88. Nitrosative guanine deamination: An ab initio study of the carbodiimide - cyanoamine tautomerization in the pyrimidine ring-opened intermediate  
**Rainer Glaser** and Sundeep Rayat  
Division of Toxicology, 224<sup>th</sup> ACS National Meeting, Boston, MA, Aug. 18-22, **2002**.
87. Computational Analysis of the Origin of the Disorder in a Highly Dipole-Parallel Aligned Molecular Crystal  
**Rainer Glaser**, Zhengyu Wu, and Michael Lewis  
Division of Computers in Chemistry, 223<sup>th</sup> ACS National Meeting, Orlando, FL, April 7-11, **2002**.
86. Nitrosative Adenine Deamination: A Theoretical Study of the Decomposition Pathways of Adeninediazonium Ion  
**Rainer Glaser**, Brian Hodgen, and Sundeep Rayat



- Division of Computers in Chemistry, 223<sup>th</sup> ACS National Meeting, Orlando, FL, April 7-11, **2002**.
85. Theoretical Study of Phenylboronic Acids as a Source of Phenyl Anions  
**Rainer Glaser** and Nathan Knotts  
Division of Computers in Chemistry, 223<sup>th</sup> ACS National Meeting, Orlando, FL, April 7-11, **2002**.
  84. Benzene Quadrupolarity and Arene-Arene Interactions  
**Rainer Glaser** and Zhengyu Wu  
Division of Computers in Chemistry, 221<sup>st</sup> ACS National Meeting, San Diego, CA, April 1 - 5, **2001**.
  83. Cytosine to Uracil Mutation Revisited. Theoretical and Experimental Mechanistic Studies of the Nitrosative Cytosine Deamination  
**Rainer Glaser** and Sundeep Rayat  
Division of Organic Chemistry, 221<sup>st</sup> ACS National Meeting, San Diego, CA, April 1 - 5, **2001**.
  82. Benzene Quadrupolarity. A Study Of Theoretical Level Dependencies  
Zhengyu Wu and **Rainer Glaser**  
Division of Physical Chemistry, 35<sup>th</sup> ACS Midwest Regional Meeting, St. Louis, MI, Oct. 25-28, **2000**.
  81. Experimental Realization Of Dipole Parallel-Aligned Crystals. An Improved Design Based On Triple T-Contacts  
Michael Lewis and **Rainer Glaser**  
Division of Organic Chemistry, 35<sup>th</sup> ACS Midwest Regional Meeting, St. Louis, MO, Oct. 25-28, **2000**.
  80. Bonding In Azarynes: The Cyclic Nitrilium Ion Structure  
Sundeep Rayat and Rainer Glaser  
Division of Organic Chemistry, 35<sup>th</sup> ACS Midwest Regional Meeting, St. Louis, MO, Oct. 25-28, **2000**.
  79. Philosophy, Pedagogy And Taxonomy Of News Media Based Authentic Learning Activities.  
**Rainer E. Glaser**  
35<sup>th</sup> ACS Midwest Regional Meeting, St. Louis, MO, Oct. 25-28, **2000**.
  78. Parallel Dipole Alignment in the Absence of External Electric Fields: The Azine Functional Group As A 'Conjugation Stopper'  
Michael Lewis and **Rainer Glaser**  
CSC2000, Calgary, Alberta, Canada, May 25-31, **2000**.
  77. Hetarynes, Phenyl Cations or Cyclic Nitrilum Ions? An Ab Initio Study  
Sundeep Rayat and **Rainer Glaser**  
33<sup>rd</sup> Midwest Theoretical Chemistry Conference, University of Iowa, Iowa City, IA, May 25-27, **2000**.
  76. Chemistry is in the News: An Authentic Learning Activity  
**Rainer E. Glaser**  
"Converging Technologies: Reaching Learners in the Digital Age" Conference Sponsored by the MOREnet Consortium and Educational Technologies at Missouri, Tan-Tar-A Resort, Lake of the Ozarks, MO, April 6-7, **2000**.

75. Electrostatic Bonding In The System  $\text{N}_2\cdots\text{OH}^-$ . A Higher Level Ab Initio Quantum-Mechanical Study  
**Rainer Glaser**  
 Division of Physical Chemistry, 34<sup>th</sup> ACS Midwest Regional Meeting, Quincy, IL, Oct. 27-29, **1999**.
74. Ab Initio Study Of Cations Formally Derived By Dediazonation Of Guaninediazonium Ion Without Pyrimidine Ring Opening  
**Rainer Glaser**  
 Division of Organic Chemistry, 34<sup>th</sup> ACS Midwest Regional Meeting, Quincy, IL, Oct. 27-29, **1999**.
73. Ab Initio Theoretical Studies Of Deglycosylation Associated With Nitrosative Guanine Deamination  
Sundeep Rayat and **Rainer Glaser**  
 Division of Organic Chemistry, 34<sup>th</sup> ACS Midwest Regional Meeting, Quincy, IL, Oct. 27-29, **1999**.
72. An Ab Initio Study Of Oxanosine Formation In The Course Of Guanine Deamination  
**Rainer Glaser**, Thomas Carl, and Michael Lewis  
 Division of Organic Chemistry, 34<sup>th</sup> ACS Midwest Regional Meeting, Quincy, IL, Oct. 27-29, **1999**.
71. Mechanism Of Dediazonation Of Guaninediazonium Ion: Effects Of Aggregation With Cytosine  
Michael Lewis and **Rainer Glaser**  
 Division of Organic Chemistry, 34<sup>th</sup> ACS Midwest Regional Meeting, Quincy, IL, Oct. 27-29, **1999**.
70. The Azine Functional Group As A Conjugation Stopper: Evidence From NMR Spectroscopy And Ab Initio Theory  
Michael Lewis and **Rainer Glaser**  
 Division of Organic Chemistry, 34<sup>th</sup> ACS Midwest Regional Meeting, Quincy, IL, Oct. 27-29, **1999**.
69. Substituted Benzaldehydes: An ab Initio Study of “Push-Pull” and “Pull-Pull” Interactions  
Somnath Sarkar and **Rainer Glaser**  
 Division of Organic Chemistry, 34<sup>th</sup> ACS Midwest Regional Meeting, Quincy, IL, Oct. 27-29, **1999**.
68. Molecular Modeling Experiments in the Investigation of Acidity for Undergraduate Organic Chemistry  
Somnath Sarkar and **Rainer E. Glaser**  
 217<sup>th</sup> ACS National Meeting, Anaheim, CA, March 21-25, **1999**.
67. Exploratory Molecular Modeling Experiments in IR and UV/Vis Spectroscopy for Undergraduate Organic Chemistry Education  
Somnath Sarkar, Angel Mckee, and **Rainer E. Glaser**  
 217<sup>th</sup>ACS National Meeting, Anaheim, CA, March 21-25, **1999**.
66. Single- and Double-Proton-Transfer in Aggregates Between Cytosine and Guaninediazonium Ion  
Michael Lewis and **Rainer Glaser**

- Division of Organic Chemistry, 128<sup>th</sup> ACS National Meeting, New Orleans, LA, Aug. 22-26, **1999**.
65. Stereochemistry of Dimers Formed by Asymmetrized Twisted-Spacer Connected Arene Systems  
**Rainer Glaser**, Grace Chen, and Michael Lewis  
Division of Organic Chemistry, 33<sup>rd</sup> ACS Regional Meeting, Wichita, KS, Nov. 4-6, **1998**.
64. Double-T-Contacts: Employing Intermolecular Quadrupole-Quadrupole Interactions in the Design of Organic Crystals  
**Michael Lewis** and **Rainer Glaser**  
Division of Organic Chemistry, 33<sup>rd</sup> ACS Regional Meeting, Wichita, KS, Nov. 4-6, **1998**.
63. Synergism of Catalysis and Reaction Center Rehybridization in the Hydrolysis of Carbon Dioxide  
**Michael Lewis** and **Rainer Glaser**  
Division of Physical Chemistry, 33<sup>rd</sup> ACS Regional Meeting, Wichita, KS, Nov. 4-6, **1998**.
62. Electronic Excitations in Homopolyatomic Bismuth Cations. An ab Initio CI-Singles and CASSCF Study  
**Graeme Day** (a), **Rainer Glaser** (a), Noriyuki Shimomura (b), Atsushi Takamuku (b), and **Kazuhiko Ichikawa** (b)  
(a) Department of Chemistry, University of Missouri, Columbia, Missouri 65211, (b) Division of Material Science, Graduate School of Environmental Earth Sciences, University of Hokkaido, Sapporo 060, Japan  
Division of Physical Chemistry, 33<sup>rd</sup> ACS Regional Meeting, Wichita, KS, Nov. 4-6, **1998**.
61. Selected Molecular Modeling Experiments for Undergraduate Organic Chemistry Education.  
**Somnath Sarkar**, Angel Mckee, and **Rainer E. Glaser**  
33<sup>rd</sup> ACS Regional Meeting, Wichita, KS, Nov. 4-6, **1998**.
60. Development of a Web-Based Student Peer Assessment Tool for Undergraduate Chemistry Education  
**Rainer E. Glaser** (a), **Melissa Poole** (b), and Dave Lloyd (c)  
(a) Department of Chemistry, (b) School of Information Sciences and Information Technologies, College of Education, and (c) Information and Access Technology Services, University of Missouri-Columbia, Columbia, MO 65211  
33<sup>rd</sup> ACS Regional Meeting, Wichita, KS, Nov. 4-6, **1998**.
59. Molecular Crystalline Organic Ferroelectric NLO Materials: The Crystal Structures of the Highly Dipole Parallel-Aligned Materials 4-Chloro- and 4-Bromo-4'-Methoxyacetophenone Azine  
**Michael Lewis** and **Rainer Glaser**  
IXth Midwest Organic Solid State Chemistry Symposium, Kansas State University, Manhattan, KS, June 12-13, **1998**.
58. Crystalline Molecular Non-Linear Optical Materials. Asymmetrization of Azines and Butadienes  
**Sarah A. Meyer** and **Rainer Glaser**  
1998 Missouri Academy of Sciences Collegiate Meeting, Missouri Western State University, St. Joseph, MO, April 17, **1998**.
57. S<sub>N</sub>2 Preference Energies in the Gas-Phase Identity Reactions of Dinitrogen with Diazonium Ions

- Rhonda M. Walsh and **Rainer Glaser**  
1998 Missouri Academy of Sciences Collegiate Meeting, Missouri Western State University, St. Joseph, MO, April 17, **1998**.
56. Molecular Crystalline Organic Ferroelectric NLO Materials. The Crystal Structures of Two Phases of the Highly Dipole Parallel Aligned Material 4-Methoxy-4'-Chloroacetophenone Azine  
Michael Lewis, Charles L. Barnes, and **Rainer Glaser**  
Division of Organic Chemistry, Symposium on "Dendrimers, Materials, Optics, and Photochemistry", 215<sup>th</sup> ACS National Meeting, Dallas, TX, April 1, **1998**.
55. Cation-Dinitrogen Interactions. S<sub>N</sub>2 Preference Energies in the Gas-Phase Identity Reactions of N<sub>2</sub> with Diazonium Ions  
Rhonda Walsh and **Rainer Glaser**  
Division of Organic Chemistry, Symposium on "Theory, Isotope Effects, Physical Organic Chemistry", 215<sup>th</sup> ACS National Meeting, Dallas, TX, March 31, **1998**.
54. Crystalline Molecular NLO Materials. Asymmetrization of Azines and Butadienes  
Sarah Meyer and **Rainer Glaser**  
Eighth Annual Argonne Symposium for Undergraduates in Science, Engineering and Mathematics, Argonne National Laboratory, Argonne, IL, Nov. 7-8, **1997**.
53. Nucleophilic Substitution of Diazonium Ions. The Identity Reactions of N<sub>2</sub> with Methyl- and Benzenediazonium Ions.  
Rhonda Walsh and **Rainer Glaser**  
Division of Organic Chemistry (#236), 32<sup>nd</sup> ACS Midwest Meeting, Tan-Tar-A Resort, Lake of the Ozarks, Osage Beach, MO, Oct. 31, **1997**.
52. A Quadratic CI Study of the "Water Catalyzed" Hydrolyses of Carbodiimide, HN=C=NH, and Methyleneimine, HN=CH<sub>2</sub>  
Michael Lewis and **Rainer Glaser**  
Division of Physical Chemistry (#251), 32<sup>nd</sup> ACS Midwest Meeting, Tan-Tar-A Resort, Lake of the Ozarks, Osage Beach, MO, Oct. 30, **1997**.
51. Collaborative Learning and Peer Review in Chemical Learning Communities  
**Rainer E. Glaser** and Melissa Poole  
Division of Chemical Education, 32<sup>nd</sup> ACS Midwest Meeting, Tan-Tar-A Resort, Lake of the Ozarks, Osage Beach, MO, Oct. 30, **1997**.
50. Using Computer-Mediated Communication to Transform Large Classes into Student-Centered Learning Communities  
**Rainer E. Glaser** and Melissa Poole  
Discussion Session at EDUCOM '97, Minneapolis, MN, Oct. 29, **1997**.
49. Combination of Physical-Organic and Theoretical Methods in Electronic Structure Analysis. Opposing Sign Reaction Constants in Dual Substituent Parameter (DSP) Relations.  
**Rainer Glaser** (a), Stephanie Nelson (a), Michael Lewis (a), Christopher Horan (a), and **Heinrich Zollinger** (b)  
(a) Department of Chemistry, University of Missouri-Columbia, Columbia, MO 65211, (b) Technisch-Chemisches Laboratorium, Eidgenössische Technische Hochschule, CH-8092 Zürich, Switzerland.  
Lecture at the 30<sup>th</sup> Midwest Theoretical Chemistry Conference, University of Illinois, Urbana-Champaign, IL, May 22-24, **1997**. Pictorial.

48. Dinitrogen Catalysis of the Rotational Automerization of Benzyl Cation in the Gas Phase  
**Rainer Glaser**  
Division of Physical Chemistry (#88), 31<sup>st</sup> ACS Midwest Meeting, Sioux Falls, South Dakota, Nov. 6-8, **1996**. Pictorial.
47. Pyrimidine Ring-Opening in the Unimolecular Dediazonation of Guanine Diazonium Ion. An ab Initio Theoretical Study of the Mechanism of Nitrosative Guanosine Deamination  
**Rainer Glaser**  
Division of Organic Chemistry (#76), 31<sup>st</sup> ACS Midwest Meeting, Sioux Falls, SD, Nov. 6-8, **1996**. Pictorial.
46. Counterintuitive Dipole Moment Direction and Electron Density Distributions in the Electronic Structures of the Nonlinear Optical Materials NPO and POM  
**Rainer Glaser** and Grace S. Chen  
Division of Organic Chemistry (#438), 212<sup>th</sup> ACS National Meeting, Orlando, FL, Aug. 29, **1996**.
45. A Simple and Accurate Method to Determine the Molecular Hyperpolarizability By Relative EFISH Measurements.  
ChangSheng Liu, **John F. Kauffman**, Grace S. Chen, and **Rainer Glaser**  
Division of Analytical Chemistry (#080), 211<sup>th</sup> ACS Nat. Meeting, New Orleans, LA, April **1996**.
44. Novel Selenium and Tellurium Stabilized Mono-, Di-, and Trications. An ab initio Study of  $[C(XH)]_3^{n+}$  (n = 1-3)  
Grace S. Chen and **Rainer Glaser** (University of Missouri-Columbia), Christina Marchand and Hansjörg Grützmacher (University of Freiburg, Germany)  
28<sup>th</sup> Midwest Theoretical Chemistry Conference, Northwestern University, Evanston, IL, May 13, **1995**.
43. Complexes Between Lewis Acids and Broensted Acids. Experimental and Theoretical Studies of Structures and Acidities of  $(X_3SbO)_2RCOOH$   
**Rainer Glaser** and Grace S. Chen  
28<sup>th</sup> Midwest Theoretical Chemistry Conference, Northwestern University, Evanston, IL, May 12, **1995**.
42. Effects of Ortho Substitution on Phenylacetic Acid Enolization  
Mitchell Anthamatten and **Rainer Glaser**  
Missouri Academy of Science Collegiate Paper Competition, Northwest Missouri State University, Maryville, MO, April 21, **1995**.
41. Complexes between Lewis Acids and Bronsted Acids. On the Structures and Acidities of  $(SbCl_3O)_2 \cdot RCOOH$   
Grace S. Chen and **Rainer Glaser**  
Division of Org. Chem. (#224), 209<sup>th</sup> ACS Nat. Meeting, Anaheim, CA, April 5, **1995**.
40. Nitrogen Electric Field Gradients,  $^{14}N$  Line Width, and Chemical Shift Variations in Amines. An Ab Initio Study  
Jeremy C. Lowe, **Rainer Glaser**, and Tuck C. Wong  
Argonne Symposium for Undergraduate Research, Nov. 4, **1994**.
39. An Initio Studies of Phenylacetic Acid Enolization and Effects of Ortho-Diazonium Substitution  
Mitchell Anthamatten and **Rainer Glaser**

- Argonne Symposium for Undergraduate Research, Nov. 4, **1994**.
38. Optical Properties of Azines. A UV/Vis-Spectroscopic Study of Symmetrical and Asymmetrical Para-Substituted Acetophenone Azines  
Aaron J. Bernabo, Grace S. Chen, and **Rainer Glaser**  
Argonne Symposium for Undergraduate Research, Nov. 4, **1994**.
  37. Synthesis, Stereochemistry, and Nonlinear Optical Properties of Asymmetrical Azines  
Jason Wilbur, Grace S. Chen, and **Rainer Glaser**  
Argonne Symposium for Undergraduate Research, Nov. 4, **1994**.
  36. New Radical Polycations. Is the  $[C(SR)_3]^{2+}$  Radical Dication Distonic and Cyclic? An ab Initio Study of  $HC(SH)_3$ ,  $[C(SH)_3]^+$ , and  $[C(SH)_3]^{2+}$   
Rainer Glaser, Grace Shiahuy Chen, Godwin Sik-Cheung Choy, Hansjörg Grützmacher  
Division of Computers in Chemistry (#194), 208<sup>th</sup> ACS National Meeting, Washington, DC, Aug. 25, **1994**.
  35. Spin Polarization Versus Spin Delocalization. Electron and Spin Density Analysis of the Rotational Automerization of Allyl Radical Including Electron Correlation Effects  
**Rainer Glaser** and Godwin Sik-Cheung Choy  
Division of Computers in Chemistry (#183), 208<sup>th</sup> ACS National Meeting, Washington, DC, Aug. 25, **1994**.
  34. Stereochemistry of para-Substituted Acetophenone Azines in the Solid State, in Solution, and in the Gas Phase  
Grace Shiahuy Chen, Mitchell Anthamatten, Jason Wilbur, and **Rainer Glaser**  
Organic Chemistry Division (#147), 208<sup>th</sup> ACS National Meeting, Washington, DC, Aug. 22, **1994**.
  33. On the Consistency Between The Electron Density Based Bonding Model for Diazonium Ions and Experimental Properties. A Study of  $[Ph-E]^+$  with  $E = N_2, He, Ne,$  and  $Ar$   
Christopher J. Horan and **Rainer Glaser**  
Organic Chemistry Division (#146), 208<sup>th</sup> ACS National Meeting, Washington, DC, Aug. 22, **1994**.
  32. Spin Polarization Versus Spin Delocalization. Electron and Spin Density Analysis of the Rotational Automerization of Allyl Radical Including Electron Correlation Effects  
Godwin Sik-Cheung Choy and **Rainer Glaser**  
XXVII Midwest Theoretical Chemistry Conference, Columbia, MO, May 21, **1994**.
  31. Thymine Dimerization. An ab Initio Study of Stereochemical Preferences in Thymine Dimers and of Dimerization Energies  
Till Kühn and **Rainer Glaser**  
XXVII Midwest Theoretical Chemistry Conference, Columbia, MO, May 20, **1994**.
  30. Synthesis, Stereochemistry, and Non-Linear Optical Properties of Asymmetrical Azines  
Jason Wilbur, Grace S. Chen, and **Rainer Glaser**  
Missouri Academy of Science, Cape Girardeau, MO, April 29, **1994**. **2nd Place Honors**.
  29. Anisotropic Electron Correlation Effects on the Spin Polarizations of Radicals. Spin Populations versus Spin Density Difference Functions  
Godwin Sik-Cheung Choy and **Rainer Glaser**  
Physical Chemistry Division (#239), 207<sup>th</sup> ACS National Meeting, San Diego, CA, April **1994**.



28. Perturbational and Variational Correlation Effects on Electron and Spin Densities of Radicals  
Godwin Sik-Cheung Choy and **Rainer Glaser**  
Physical Chemistry Division (# 213), ACS Regional Meeting, Columbia, MO, Nov. 12, **1993**.
27. Transition Metal Complexes of Diazonium Ions. A Study of the Equatorial CO/PhN<sub>2</sub><sup>+</sup> Exchange Reaction in Trans-Fe(CO)<sub>3</sub>(PPh<sub>3</sub>)<sub>2</sub> Using Ab Initio Theory and X-Ray Crystallography  
Grace Shiahuy Chen, Young-Hee Yoo, and **Rainer Glaser**  
Inorganic Chemistry Division (#113), ACS Regional Meeting, Columbia, MO, Nov. 11, **1993**.
26. Do Bridged Diphosphonium Cations Exist? Potential Energy Surfaces, Charge Transfer Energies and Electronic Relaxation of the Phosphorus Analogues of Phenyl Diazonium Ions  
Christopher J. Horan and **Rainer Glaser**  
Organic Chemistry Division (#150), ACS Regional Meeting, Columbia, MO, Nov. 11, **1993**.
25. Origin and Consequences of Non-Synergistic Hydrogen Bonding in the Watson Crick Models ADENINE-THYMINE and GUANINE-CYTOSINE  
**Rainer Glaser** and Benjamin Harris  
Biological Chemistry Division (#52), ACS Regional Meeting Columbia, MO, Nov. 11, **1993**.
24. Stereochemistry of Para-Substituted Acetophenone Azines in the Solid State, in Solution, and in the Gas Phase  
Mitch Anthamatten, Grace Shiahuy Chen, and **Rainer Glaser**  
Organic Chemistry Division (#169), ACS Regional Meeting, Columbia, MO, Nov. 12, **1993**.
23. Charge Transfer Energies and Electronic Relaxation Associated with the Formation of the Phosphorus Analogues of Aromatic Diazonium Ions  
Christopher J. Horan and **Rainer Glaser**  
Organic Chemistry Division (#398), 206<sup>th</sup> ACS National Meeting, Chicago, IL, Aug. 26, **1993**.
22. Benzoylformate Azines. Formation and Stereochemistry in the Solid State, in Solution, and in the Gas Phase  
Grace Shiahuy Chen and **Rainer Glaser**  
Organic Chemistry Division (#133), 206<sup>th</sup> ACS National Meeting, Chicago, IL, Aug. 23, **1993**.
21. Non-Synergistic Hydrogen Bonding in the Watson Crick Models ADENINE-THYMINE and GUANINE-CYTOSINE. An ab Initio Study  
**Rainer Glaser** and Benjamin L. Harris  
Organic Chemistry Division (#319), 205<sup>th</sup> ACS National Meeting, Denver, CO, March 31, **1993**.
20. Electron and Spin Density Analysis of Spin-Projected Unrestricted Hartree-Fock Density Matrices of Radicals  
**Rainer Glaser** and Godwin Sik-Cheung Choy  
Organic Chemistry Division (#100), 205<sup>th</sup> ACS National Meeting, Denver, CO, March 29, **1993**.
19. Potential Energy Surface and Electron Density Analysis of Phosphorus Analogues of Aromatic and Aliphatic Diazonium Ions  
**Rainer Glaser**, Christopher J. Horan, Godwin Sik-Cheung Choy, Benjamin L. Harris  
XII<sup>th</sup> International Conference on Phosphorus Chemistry, Toulouse, France, July 6-10, **1992**.

18. First Crystal Structure of an Aliphatic Diazonium Ion. Theory, Spectroscopy, and Crystallography of a Vinyl Diazonium Ion:  $\beta,\beta$ -Diethoxyvinylidiazonium Hexachloroantimonate  
**Rainer Glaser**, *Grace S. Chen*, and Charles L. Barnes  
Organic Chemistry Division (#221), 203<sup>rd</sup> ACS National Meeting, San Francisco, CA, April 8, 1992.
17. Higher Level ab Initio Studies of the Phosphorus Analogues of Diazonium Ions. Lewis Notations versus Charge Distributions  
**Rainer Glaser**, Christopher J. Horan, Godwin Sik-Cheung Choy, and Benjamin L Harris  
Organic Chemistry Division (#147), 26<sup>th</sup> ACS Midwest Meeting, Omaha, NE, Nov. 8, 1991.
16. Synthesis, Theory, and Crystal Structure of  $(\text{SbCl}_3\text{O})_2\cdot\text{ClH}_2\text{C-COOH}$ . Lewis Acid Adduct of  $\text{ClH}_2\text{C-COOH}$  or  $[(\text{Cl}_3\text{Sb}(\text{OH})(\text{O})\text{SbCl}_3)]^+\text{ClH}_2\text{C-CO}_2^-$ ?  
**Rainer Glaser**, Grace Shiahuy Chen, and Charles Barnes  
Organic Chemistry Division (#145), 26<sup>th</sup> ACS Midwest Meeting, Omaha, NE, Nov. 8, 1991.
15. Neighboring Group Interactions in Aromatic 2-Carboxyl Diazonium Ions. Experiment and Theory in Concert  
**Rainer Glaser**, Paul A. Haney, Christopher J. Horan, and Charles Barnes  
Organic Chemistry Division (#112), 26<sup>th</sup> ACS Midwest Meeting, Omaha, NE, Nov. 7, 1991.
14. Toward Rigorous Electronic Structure Analysis of Polymers. Methodology  
**Rainer Glaser** and Benjamin L. Harris  
Organic Chemistry Division (#109), 26<sup>th</sup> ACS Midwest Meeting, Omaha, NE, Nov. 7, 1991.
13. Analysis of Neighboring Group Interactions in  $\beta$ -Carboxyvinylidiazonium Ions  
**Rainer Glaser**, Christopher J. Horan, and Eric D. Nelson  
Organic Chemistry Division (#320), 201<sup>st</sup> ACS National Meeting, Atlanta, GA, April 18, 1991.
12. A New and Highly Efficient Method for the Determination of Integrated Atomic Properties via Subsets of Selected Localized Molecular Orbitals  
**Rainer Glaser** and Benjamin L. Harris  
Organic Chemistry Division (#319), 201<sup>st</sup> ACS National Meeting, Atlanta, GA, April 18, 1991.
11. The Nitrosoaziridinium Ions Isomerization: Theory and Experiment  
**Richard N. Loeppky**, Aloka Srinivasen, and **Rainer Glaser**  
Organic Chemistry Division (#114), 25<sup>th</sup> ACS Midwest Meeting, Manhattan, KS, Nov. 8, 1990.
10. Nitrogen Inversion in Methylidiazohydroxide. An ab Initio Study  
M. Kirk Hall and **Rainer Glaser**  
Organic Chemistry Division (#145), 25<sup>th</sup> ACS Midwest Meeting, Manhattan, KS, Nov. 8, 1990.
9. Incipient Nucleophilic Attack as a Probe for the Electronic Structures of Diazonium Ions  
Christopher Horan, Eric D. Nelson, and **Rainer Glaser**  
Organic Chemistry Division (#147), 25<sup>th</sup> ACS Midwest Meeting, Manhattan, KS, Nov. 8, 1990.
8. Methylidiazohydroxide. Stereochemistry and Electronic Structure of a Simple Nitrogen-Separated Ion Pair  
**Rainer Glaser**

- Organic Chemistry Division (#344), 200<sup>th</sup> ACS National Meeting, Washington, DC, Aug. 30, 1990.
7. NN-Cis/Trans-Isomerization in Methyldiazohydroxide via Chiral, Non-Least Motion Pathways?  
M. Kirk Hall and **Rainer Glaser**  
Undergraduate Research Symposium of the ACS, University of Missouri-Rolla, April 14, 1990. **Winner Best Presentation Award.**
  6. NN-Cis/Trans-Isomerization in Methyldiazohydroxide via Chiral, Non-Least Motion Paths?  
M. Kirk Hall and **Rainer Glaser**  
Organic Chemistry Day, University of Missouri-Columbia, April 7, 1990.
  5. Effects of Electronegativity on Bonding and Stability of Aliphatic Diazonium Ions. An ab Initio Study.  
Godwin Sik-Cheung Choy and **Rainer Glaser**  
Organic Chemistry Day, University of Missouri-Columbia, April 7, 1990.
  4. Diazetate-N-Oxides and Azoxyalkenes from Aziridine Nitrosation  
R. N. Loeppky, Q. Feng, A. Lahiri, **R. Glaser**, and P. Sharp  
Organic Chemistry Division (#437), 198<sup>th</sup> ACS National Meeting, Boston, MA, April 1990.
  3. Pathways to Enantiomerization, Automerization, and Isomerization of Diaminovinyl Cation, and Analysis of the Bonding  
Rainer Glaser and **Kenneth B. Wiberg**  
Organic Chemistry Division (#351), 196<sup>th</sup> ACS National Meeting, Los Angeles, CA, Sept. 29, 1988.
  2. Structure, Bonding, and Stability of Diazonium and Diphosphonium Cations  
Rainer Glaser  
Organic Chemistry Division (#424), Third Chemical Congress of North America and 195<sup>th</sup> ACS National Meeting, Toronto, Canada, June 9, 1988.
  1. Theoretical Study of Metalated Aldimines. Monomeric Ion Pairs Do Not Account for the Observed Stereochemistry  
Rainer Glaser and **Andrew Streitwieser, Jr.**  
Organic Chemistry Division (#208), Third Chemical Congress of North America and 195<sup>th</sup> ACS National Meeting, Toronto, Canada, June 7, 1988.

## **H. Contributed Posters, Video & Internet Presentations**

Presentations are numbered chronologically and listed in reverse chronological order. Information provided as in section F. Presenter(s) underlined, **corresponding author(s)** in bold face.

168. Polar and non-polar stacking of perfectly aligned parallel bolaamphiphile monolayers (PBAMs) of (PhO, F)-azine. Importance of non-covalent interlayer interactions  
Harmeet Bhoday, Steven P. Kelley, and **Rainer Glaser**  
Poster, Division of Organic Chemistry, ACS Midwest Regional Meeting, University of Iowa, Iowa City, IA, Oct. 19-21, 2022. *In-Person.*
167. Theoretical Exploration of Possible Mechanisms of the Bromic Acid Oxidation of Malonic Acid via Tartronic Acid to Mesoxalic Acid  
Ethan Hay and **Rainer Glaser**

- Poster, Division of Organic Chemistry, ACS Midwest Regional Meeting, University of Iowa, Iowa City, IA, Oct. 19-21, **2022**. *In-Person*.
166. Synthesis and characterization of novel donor-acceptor substituted 1,4-diphenyl-1,3-butadienes: potential dipole-parallel aligned NLO active materials  
Justin Nulsen, Harmeet Bhoday, and **Rainer Glaser**  
 Poster, Division of Organic Chemistry, ACS Midwest Regional Meeting, University of Iowa, Iowa City, IA, Oct. 19-21, 2022. *In-Person*.
  165. Formation of  $F_2B-XH_nR_m$  boranes ( $X = O, N, S, P$ ) by direct and indirect nucleophilic substitution chemistry of trifluoroborane  $BF_3$  in gas phase  
Rebekah Penn, Garry Grubbs, and **Rainer Glaser**  
 Poster, Division of Organic Chemistry, ACS Midwest Regional Meeting, Missouri State University, Springfield, MO, Oct. 20-22, **2021**. *In-Person*.
  164. RuBisCO-inspired CO capture systems: lower pH carbamylation by fluorination  
Brian Jameson, Kari Knobbe, and **Rainer Glaser**  
 Poster, Division of Organic Chemistry, ACS Midwest Regional Meeting, Missouri State University, Springfield, MO, Oct. 20-22, **2021**. *In-Person*.
  163. Perfect polar alignment of parallel beloamphiphile layers: Synthesis, characterization, and crystal architectures of donor-acceptor substituted acetophenone azines  
Harmeet Singh Bhoday and **Rainer Glaser**  
 Poster, Division of Materials Chemistry, ACS Midwest Regional Meeting, Missouri State University, Springfield, MO, Oct. 20-22, **2021**. *In-Person*.
  162. Mechanistic implications of hysteresis loops in the cerium- and manganese-catalyzed Belousov-Zhabotinsky reaction  
Sara McCauley, Ethan Hay, and **Rainer Glaser**  
 Poster, Division of Organic Chemistry, ACS Midwest Regional Meeting, Missouri State University, Springfield, MO, Oct. 20-22, **2021**. *In-Person*.
  161. Specific Solvation Alters the Conformer Preference of Diphenylalanines and Enables Polar Crystallization. Structural Studies and GIAO Calculations Explain NMR Measurements  
Kaidi Yang, Christian Arens, Fabio Gallazzi, and **Rainer Glaser**  
 Poster, Division of Organic Chemistry, ACS Midwest Regional Meeting, Missouri State University, Springfield, MO, Oct. 20-22, **2021**. *In-Person*.
  160. Perfect polar alignment of parallel beloamphiphile layers: Synthesis, characterization, and crystal architectures of donor-acceptor substituted acetophenone azines  
Harmeet Singh Bhoday and **Rainer Glaser**  
 Poster, Division of Materials Chemistry, ACS Midwest Regional Meeting, Missouri State University, Springfield, MO, Oct. 20-22, **2021**. *In-Person*.
  159. Computational studies explain the  $CF_3$  related rotational isomerism of *N*-(2,2,2-trifluoroethyl)carbamates observed by  $^{13}C$  NMR spectroscopy  
Brian Jameson and **Rainer Glaser**  
 Poster, Division of Organic Chemistry, 2021 ACS Fall National Meeting, Atlanta, GA, Aug. 23, **2021**. *Sci-Mix Virtual*.
  158. Symmetrical para-bromoacetophenone azine: Variable-T crystallography of a case of crystal environment induced symmetry reduction (CEISR)  
Harmeet Singh Bhoday, Kaidi Yang, Steven Kelley, and **Rainer Glaser**

- Poster, Division of Organic Chemistry, 2021 ACS Fall National Meeting, Atlanta, GA, Aug. 23 & 24, **2021**. *Sci-Mix Virtual on 8/23; Virtual Org. Poster Session 8/24*.
157. Symmetrical para-chloroacetophenone azine: Asymmetry instead of dissymmetry due to crystal environment induced symmetry reduction (CEISR)  
Kaidi Yang, Harmeet Singh Bhoday, and **Rainer Glaser**  
Poster, Division of Organic Chemistry, 2021 ACS Fall National Meeting, Atlanta, GA, Aug. 23 & 24, **2021**. *Sci-Mix Virtual on 8/23; Virtual Org. Poster Session 8/24*.
156. Improving Access to Chemistry Education: Using Calorimetry to Teach Titration in a High School Chemistry Lab  
Sara McCauley, Ethan Galloway, and **Rainer Glaser**  
UM System Virtual Undergraduate Research Day at the Capitol, Jefferson City, MO, April 12-16, **2021**. Abstract Booklet. *Virtual*.
155. Your Brain in Lockdown: The Stress-Cortisol Connection and How to Remedy with Mindful Nutrition  
Kari Knobbe, Joseph Schell, and **Rainer Glaser**  
UM System Virtual Undergraduate Research Day at the Capitol, Jefferson City, MO, April 12-16, **2021**. Abstract Booklet. *Virtual*.
154. Perfect polar alignment of parallel beloamphiphile layers: Synthesis, characterization, and crystal architectures of donor-acceptor substituted acetophenone azines  
Harmeet Singh Bhoday and **Rainer Glaser**  
Poster, Division of Materials Chemistry, ACS Midwest Regional Meeting, Missouri State University, Springfield, MO, Oct. 21-23, **2020**. *Postponed*.
153. DFT Investigation into the role of outer-sphere coordination in the ferriin reduction in the iron-catalyzed Belousov-Zhabotinsky reaction  
Sara McCauley and **Rainer Glaser**  
Poster, Division of Physical Chemistry, ACS Fall National Meeting, San Francisco, CA, Aug. 16-20, **2020**. *Virtual*.
152. Recent Development of a Colorimetric Method Using Vector Analysis in the 3D RGB Color Space and Proof of Concept Studies  
Joseph Schell, Sara McCauley, and **Rainer Glaser**  
Poster, Division of Analytical Chemistry, ACS Fall National Meeting, San Francisco, CA, Aug. 16-20, **2020**. *Virtual*.
151. Synthesis of fluorinated lysine derivatives and application in reversible CO<sub>2</sub> capture  
Brian M. Jameson, Christopher M. Dempsey, and **Rainer Glaser**  
Poster, Division of Organic Chemistry: Peptides, Proteins & Amino Acids, ACS Fall National Meeting, San Francisco, CA, Aug. 16-20, **2020**.
150. Computational investigation of enzymatic steroid oxidation by Cytochrome P450 (CYP11B2) using multilevel methods  
Kari Knobbe, Joseph Schell, Kaitlyn Chetney, Casey Hawkins, and **Rainer Glaser**  
Poster, Division of Computers in Chemistry, ACS Fall National Meeting, San Francisco, CA, Aug. 16-20, **2020**. *Virtual*.
149. Enhanced SHG Activity of Fluorinated Diphenylalanines. A Structural Study with NMR Spectroscopy and GIAO Calculations  
Kaidi Yang, Fabio Gallazzi, Christina Arens, and **Rainer Glaser**

- Poster, Division of Organic Chemistry: Peptides, Proteins & Amino Acids ACS Fall National Meeting, San Francisco, CA, Aug. 16-20, **2020**.
148. Non-Linear Optical Properties of Crystalline Unsymmetrical 4-Halo-4'-n-Alkoxyacetophenone Azines and of Butadiene Analogs. Structural and Computational Analysis of the Crystal Architectures  
Kaidi Yang, Stephen R. Murphy, Nichol Corretjer, Sarah Gadban, and **Rainer Glaser**  
Poster, Division of Organic Chemistry, ACS Fall National Meeting, San Francisco, CA, Aug. 16-20, **2020**.
147. Polar alignments in donor-acceptor substituted acetophenone azines: Synthesis, characterization, and crystal architectures  
Harmeet Singh Bhoday, Audrey Schuman, and **Rainer Glaser**  
Poster, Division of Organic Chemistry, ACS Fall National Meeting, San Francisco, CA, Aug. 16-20, **2020**.
146. Polar Order in Organic Non-linear Optical Materials  
Stephen Murphy, Kaidi Yang, and **Rainer Glaser**  
Poster, 16<sup>th</sup> Annual Missouri S&T Undergraduate Research Conference (UGRC), Missouri University of Science and Technology, Rolla, MO, April 16, **2020**.
145. Computational Study of the Enzymatic Oxidation of Deoxycorticosterone by Cytochrome P450  
Kari Knobbe, Joseph Schell, and **Rainer Glaser**  
Poster, 16<sup>th</sup> Annual Missouri S&T Undergraduate Research Conference (UGRC), Missouri University of Science and Technology, Rolla, MO, April 16, **2020**.
144. Applications of Recent Colorimetric Methods Involving Vector Analysis in the 3D RGB Color Space  
Sara McCauley, Joseph Schell, and **Rainer Glaser**  
Poster, 16<sup>th</sup> Annual Missouri S&T Undergraduate Research Conference (UGRC), Missouri University of Science and Technology, Rolla, MO, April 16, **2020**.
143. ONIOM Computational Study of the Thermochemistry of Activation and Carbamylation Reactions of Rubisco  
Kari Knobbe, Joseph Schell, and **Rainer Glaser**  
Contributed Poster, Division of Physical Chemistry 2019 Midwest Regional Meeting, Wichita State University, Wichita, KS, Oct. 18, **2019**.
142. Computational Study of CO<sub>2</sub> Capture by the Rubisco-Inspired Tetrapeptide KDDE: Sequence of Carbamate Formation and Mg<sup>2+</sup> Complexation  
Kaidi Yang and **Rainer Glaser**  
Contributed Poster, Division of Physical Chemistry 2019 Midwest Regional Meeting, Wichita State University, Wichita, KS, Oct. 18, **2019**.
141. 4-Fluoroacetophenone-(4'-phenoxyphenylethylidene) hydrazone, an unsymmetrical acetophenone azine: Synthesis, Structure and Computational Study  
Harmeet Singh Bhoday and **Rainer Glaser**  
Contributed Poster, Division of Organic Chemistry 2019 Midwest Regional Meeting, Wichita State University, Wichita, KS, Oct. 18, **2019**.
140. Expanding on Recent Colorimetry Methods to Include Multicomponent Systems Using Vector Analysis in the 3D RGB Color Space  
Sara McCauley, Joseph Schell, and **Rainer Glaser**

- Contributed Poster, Division of Analytical Chemistry, 2019 Midwest Regional Meeting, Wichita State University, Wichita, KS, Oct. 17, **2019**.
139. Non-Linear Optical Properties of Crystalline Unsymmetrical 4-Halo-4'-n-Alkoxyacetophenone Azines and of Butadiene Analogs. Structural and Computational Analysis of the Crystal Architectures  
Kaidi Yang, Stephen Murphy, Nichol Corretjer, Sarah Gadban, and **Rainer Glaser**  
Contributed Poster, Division of Organic Chemistry and Sci Mixer, 2019 Midwest Regional Meeting, Wichita State University, Wichita, KS, Oct. 16, **2019**.
  138. Non-Linear Optical Properties of Crystalline Unsymmetrical 4-Halo-4'-n- Alkoxyacetophenone Azines and of Butadiene Analogs  
Kaidi Yang, Harmeet Bhoday, and **Rainer Glaser**  
Contributed Poster, Symposium for the Confluence of Materials Science and Neutron Scattering in Missouri, Missouri S&T, Rolla, MO, Oct. 8, **2019**.
  137. Peptide synthesis, LC-MS applications, and preparation of optimized molecules for environmental and biomedical research projects  
F. Gallazzi, Michelle Bradbury, Uli Wiesner, Ken Gruber, Bret D. Ulery, Yubin Miao, **Rainer Glaser**, and T.P. Quinn  
Poster, International Oligonucleotides and Peptides Conference (IOPC), Ramada Plaza, Milan, Italy, Sept. 17-18, **2019**.
  136. Video and Computational Analysis of Belousov-Zhabotinsky Oscillating Reactions  
Sara McCauley, Gabriel Pleimann, Joseph Schell, and **Rainer Glaser**  
Poster, FYRE Research Showcase, Havener Atrium, Missouri University of Science and Technology, Rolla, MO, May 2, **2019**.
  135. Inhibition of CYP11B1 11 $\beta$ -Hydroxylation by *Sutherlandia frutescens*. Theoretical Studies of the active site and of steroid oxidation  
Casey Hawkins, Kaitlyn Chetney, **Rainer Glaser**, and **William Folk**  
Poster, Undergraduate Research Forum, University of Missouri, Columbia, MO, April 17, **2018**.
  134. Confronting the complexity of nonlinear systems. Acid-dependency of the Fe-catalyzed Belousov-Zhabotinsky oscillating chemical reaction  
Ethan Zars, Marco Delarosa, **Carmen Chicone**, and **Rainer Glaser**  
Poster, Organic Chemistry Day, University of Missouri, Columbia, MO, April 14, **2018**.
  133. Toward the Development of a "Universal" Indole Aryne Generating Platform. Synthetic and Computational Studies of Trifluoroindoles, a New and Versatile Class of Indole Aryne Precursor  
Mark Rayhart, Zainab Albader, Rainer Glaser, Christopher Cramer, Michael Wulser, Monserrat Santos, Cooper Clements, and **Keith R. Buszek**  
Poster, Organic Chemistry Day, University of Missouri, Columbia, MO, April 14, **2018**.
  132. Confronting the complexity of nonlinear systems. Acid-dependency of the Fe-catalyzed Belousov-Zhabotinsky oscillating chemical reaction  
Ethan Zars, Marco Delarosa, **Carmen Chicone**, and **Rainer Glaser**  
Poster, Undergraduate Research Forum, University of Missouri, Columbia, MO, April 17, **2018**.
  131. Inhibition of CYP11B1 11 $\beta$ -Hydroxylation by *Sutherlandia frutescens*  
Casey Hawkins, Kaitlyn Chetney, Graham Funk, **Rainer Glaser**, and **William Folk**



- Poster, Organic Chemistry Day, University of Missouri, Columbia, MO, April 14, **2018**.
130. Inhibition of CYP11B1 11 $\beta$ -Hydroxylation by *Sutherlandia frutescens*. Theoretical Studies of the active site and of steroid oxidation  
Casey Hawkins, Kaitlyn Chetney, **Rainer Glaser**, and **William Folk**  
Poster, Division of Organic Chemistry, 255<sup>th</sup> ACS National Meeting, New Orleans, LA, March 20, **2018**.
129. Confronting the complexity of nonlinear systems. Acid-dependency of the Fe-catalyzed Belousov-Zhabotinsky oscillating chemical reaction  
Ethan Zars, Marco Delarosa, **Carmen Chicone**, and **Rainer Glaser**  
Poster, Division of Organic Chemistry, 255<sup>th</sup> ACS National Meeting, New Orleans, LA, March 20, **2018**.
128. Inhibition of CYP11B1 11 $\beta$ -Hydroxylation by *Sutherlandia frutescens*  
Casey Hawkins, Kaitlyn Chetney, Grahmm Funk, **Rainer Glaser**, and **William Folk**  
Poster, Midwest Enzyme Chemistry Conference 2017 (2017 MECC), Loyola University, Chicago, IL, Oct. 14, **2017**.
127. Confronting the Complexity of Nonlinear Systems. Advances in the Understanding of the Belousov-Zhabotinsky Oscillating Chemical Reaction  
Ethan Zars, Marco Delarosa, **Carmen Chicone**, and **Rainer Glaser**  
Poster, Summer Undergraduate Research Forum (SURF), University of Missouri, Columbia, MO, July 27, **2017**.
126. Confronting the Complexity of Nonlinear Systems. Insights into the Belousov-Zhabotinsky Oscillating Chemical Reaction  
Ethan Zars, Marco Delarosa, **Carmen Chicone**, and **Rainer Glaser**  
Poster, Research & Creative Achievements Forum, University of Missouri, Columbia, MO, April 18, **2017**.
125. Inhibition of CYP11B1 11 $\beta$ -Hydroxylation by *Sutherlandia frutescens*  
Casey Hawkins, Kaitlyn Chetney, and **Rainer Glaser**  
Poster, Research & Creative Achievements Forum, University of Missouri, Columbia, MO, April 18, **2017**.
124. Towards the Development of a “Universal” Indole Aryne Generating Platform. Synthetic and Computational Studies of *N*-Methyl-5,6-Difluoro-3-Phenyl Indole  
Mark Rayhart, Rainer Glaser, Christopher J. Cramer, and **Keith R. Buszek**  
Poster, Organic Chemistry Day, University of Missouri, Columbia, MO, April 15, **2017**.
123. Rubisco-Based Biomimetic Systems for Reversible CO<sub>2</sub> Capture from Air  
Kaidi Yang, Joseph Schell, Fabio Gallazi, Wei Wycoff, and **Rainer Glaser**  
Poster, Organic Chemistry Day, University of Missouri, Columbia, MO, April 15, **2017**.
122. Simultaneous Solution Of All Species Concentrations For The Multi-Equilibria Buffer System Of Citric Acid And Dibasic Sodium Phosphate  
Joseph Schell, Ethan Zars, and **Rainer Glaser**  
Poster, Organic Chemistry Day, University of Missouri, Columbia, MO, April 15, **2017**.
121. Confronting the Complexity of Nonlinear Systems. Insights into the Belousov-Zhabotinsky Oscillating Chemical Reaction  
Ethan Zars, Marco Delarosa, **Carmen Chicone**, and **Rainer Glaser**  
Poster, Organic Chemistry Day, University of Missouri, Columbia, MO, April 15, **2017**.

120. Inhibition of CYP11B1 11 $\beta$ -Hydroxylation by *Sutherlandia frutescens*  
Casey Hawkins, Kaitlyn Chetney, and **Rainer Glaser**  
Poster, Organic Chemistry Day, University of Missouri, Columbia, MO, April 15, **2017**.
119. Confronting the Complexity of Nonlinear Systems. Mechanistic Insights into the Belousov-Zhabotinsky Oscillating Chemical Reaction  
Ethan Zars, Marco Delarosa, **Carmen Chicone**, and **Rainer Glaser**  
Poster, Arts & Science Week, Reception and Banquet, University of Missouri, Columbia, MO, Feb. 17, **2017**.
118. Inhibition of CYP11B1 11 $\beta$ -Hydroxylation by *Sutherlandia frutescens*. Electronic Structures and Spin Density Distributions of the Iron-Oxo Species in the Active Site  
Casey Hawkins, Kaitlyn Chetney, Graham Funk, and **Rainer Glaser**  
Poster, Undergraduate Research & Creative Achievements Forum, University of Missouri, Columbia, MO, April 26, **2016**.
117. The dative bonding complex F<sub>3</sub>B---PH<sub>3</sub> does not exist. The microwave spectrum measured for the “F<sub>3</sub>B---PH<sub>3</sub> complex” actually corresponds to F<sub>2</sub>B-PH<sub>2</sub>  
Joseph Schell and **Rainer Glaser**  
Poster, 2016 Organic Chemistry Day, University of Missouri, Columbia, MO, April 9, **2016**.
116. Malleability of Acyclic and Cyclic Aluminoxanes: Interplay Between Donor and Acceptor Stabilizations on Structures and Stabilities  
Kaidi Yang and **Rainer Glaser**  
Poster, 2016 Organic Chemistry Day, University of Missouri, Columbia, MO, April 9, **2016**.
115. The dative bonding complex F<sub>3</sub>B---PH<sub>3</sub> does not exist. The microwave spectrum measured for the “F<sub>3</sub>B---PH<sub>3</sub> complex” actually corresponds to F<sub>2</sub>B-PH<sub>2</sub>  
Joseph Schell, Wenhong Yang, and **Rainer Glaser**  
Contributed Poster, Div. of Phys. Chem. 2015 ACS Regional Meeting, St. Joseph, MO, Oct. 22, **2015**.
114. Carbon Oxidation by Magnesium Silicate  
Cory Camasta and **Rainer Glaser**  
Inorganic Chemistry Day, MU, Department of Chemistry, Columbia, MO, May 9, **2015**.
113. Confronting the Complexity of Nonlinear Systems. Mechanistic Insights into the Belousov-Zhabotinsky Oscillating Chemical Reaction  
Ethan Zars, Marco A. Delarosa, **Rainer Glaser**, and **Carmen Chicone**  
Poster, Spring Undergraduate Research & Creative Achievements Forum, Columbia, MO, April 21, **2015**.
112. Are the carriers of the UIE bands aromatic or aliphatic? Gas phase infrared spectroscopy of polycyclic aromatic hydrocarbons (PAHs) and of their monomethyl derivatives  
**Rainer Glaser**, Xuejuan Yang, Aigen Li, and Jianxin Zhong.  
Poster, Astrochemistry Subdivision, 246<sup>th</sup> ACS National Meeting, Indianapolis, IN, Indiana Convention Center, Halls F & G, 6-9 pm, Sept. 11, **2013**.
111. Formation and Hydrolysis of O(BrO)<sub>2</sub>. Mechanism of a Key Step of the Belousov-Zhabotinsky Oscillating Reaction  
**Rainer Glaser**, Mary Jost, and Ahmed Olasunkanmi Salau  
Poster, 2012 Reaction Mechanisms Conference, ACS Division of Organic Chemistry, Columbia, MO, June 22, **2012**.

110. LAH Reduction of Malononitrile: Imide-Vinylamide Tautomerization, Anion Aggregation with Li-Cation and  $\text{AlH}_3$ , and Consideration of Multiple-Additions  
Laura Ulmer, Stephanie Coyle, and **Rainer Glaser**  
Poster, 2012 Reaction Mechanisms Conference, ACS Division of Organic Chemistry, Columbia, MO, June 22, **2012**.
109. Organic Chemistry of Belousov-Zhabotinsky Oscillating Reactions. Stereochemistry of Malonic Acids and Thermochemistry of Ketomalonic Acid Formation  
Michelle Lukosi and **Rainer Glaser**  
Poster, 2012 Reaction Mechanisms Conference, ACS Division of Organic Chemistry, Columbia, MO, June 20, **2012**.
108. QCI//DFT Studies of Hypoxia-Selective 1,2,4-Benzotriazine 1,4-Dioxides with Antitumor Activity: Mechanistic Insights from Tirapazamine Analogs  
Jian Yin, **Rainer Glaser**, and Kent S. Gates  
Poster, 2012 Reaction Mechanisms Conference, ACS Division of Organic Chemistry, Columbia, MO, June 20, **2012**.
107. Nonlinear dynamics of oscillating reactions: New chemistry from limit cycle analysis?  
Kallie Brown, Mary Jost, Michael Swyers, **Carmen Chicone**, and **Rainer Glaser**  
Poster, 2010 Summer Undergraduate Research and Creative Achievements Forum, Columbia, MO, July 29, **2010**.
106. Advanced Biomimetic Materials for Reversible  $\text{CO}_2$  Capture from Air  
**Rainer Glaser**  
Poster, Missouri Energy Summit, Columbia, MO, April 22-23, **2009**.
105. Adenine Synthesis in the Cold ISM: Hydrogen Tunneling in HCN-Pentamer  
Jian Yin, Jingjing Zheng, **Rainer Glaser**, and **Don Truhlar**  
Poster, 40<sup>th</sup> Midwest Conference on Theoretical Chemistry, Ann Arbor, MI, June 26-28, **2008**.
104. Research, Education and Communication in "Science 2.0" (Thomas Jefferson Would Not Want It Any Other Way)  
**Rainer Glaser** and Kathleen Carson  
Poster, Missouri Life Sciences Week, University of Missouri, Columbia, MO, April 16, **2008**.
103. Structure and Dynamics of Purine Nucleobase Precursor 5-Aminoimidazole-4-Carboxamide (AICA). VT-NMR Measurements and Interpretation with Ab Initio Potential Energy Surface Analysis  
Yang Liu, Wei G. Wycoff, and **Rainer Glaser**  
Poster, Organic Chemistry Day, MU, Department of Chemistry, Columbia, MO, April 5, **2008**.
102. Synthesis and DNA Cleavage Studies of a Novel 3-Cyclopropyl-1,2,4-benzotriazine 1,4-di-*N*-oxide  
Ujjal Sarkar, **Rainer Glaser**, and **Kent S. Gates**  
Poster, 234<sup>th</sup> ACS National Meeting, Boston, MA, Aug. 19-23, **2007**.
101. Fascicularin-derived aziridinium ion: Theoretical study of the formation of the putative reactive nitrogen species  
Papiya Majumdar, Sanjay Dutta, **Rainer Glaser**, and Kent S. Gates  
Poster, 232<sup>nd</sup> ACS National Meeting, San Francisco, CA, Sept. 10-14, **2006**.

100. Nitrosative guanosine deamination:  $^{17}\text{O}$ -Labeling studies as integral accompaniment to  $^{18}\text{O}$ -studies  
Papiya Majumdar and **Rainer Glaser**  
Poster, Organic Chemistry Day, University of Missouri, Columbia, MO, April 29, **2006**.
99. Embedding 1,6-Diphenyl-1,2-Dihydronaphthalene 1,4-Distyrylbenzene (DSB): Arene-Arene Interactions in a "Crossed Bis-Diarene"  
Yongqiang John Sui and **Rainer Glaser**  
Poster, Organic Chemistry Day, University of Missouri, Columbia, MO, April 29, **2006**.
98. **Europe-2006:** Dicyanocarbene: A substrate for adenine synthesis in interstellar space  
**Rainer Glaser**, Hong Wu, and Brian Hodgen  
Poster, Faraday Discussion 133: Chemical Evolution of the Universe, Abbaye de St. Jacut, St. Jacut de la Mer, Brittany, France, April 24-26, **2006**.
97. Oxanosine Is A Substrate Of Adenosine Deaminase: Lactone Hydrolysis Instead Of Ipso Substitution  
Papiya Majumdar, Hong Wu, Peter Tipton, and **Rainer E. Glaser**  
Poster Presentation, XXV Midwest Enzyme Chemistry Conference Loyola University, Chicago, IL, Oct. 8, **2005**.
96. Molecular Dynamics: Making Molecules Dance  
Cecelia Koetting, Hong Wu, and **Rainer E. Glaser**  
Poster Presentation, 2005 Mizzou Undergraduate Research and Creative Achievements Forum, University of Missouri, Columbia, MO, April 26, **2005**.
95. Oxanosine: A Substrate of Adenosine Deaminase  
Papiya Majumdar, Hong Wu, Peter Tipton, and **Rainer Glaser**  
Poster Presentation, Organic Chemistry Day, University of Missouri-Columbia, Columbia, MO, April 16, **2005**.
94. Facilitating and balancing collaborative group work  
**Rainer E. Glaser**, Cecelia Koetting, Yongqiang Sui, and Kathleen M. Carson  
Poster Presentation, Life Sciences Week 2005, University of Missouri-Columbia, Columbia, MO, April 13, **2005**.
93. Facilitating and balancing collaborative group work in the large lecture class  
**Rainer E. Glaser**, Cecelia Koetting, Yongqiang Sui, and Kathleen M. Carson  
Poster Presentation, Division of Chemical Education, 229<sup>th</sup> ACS National Meeting, San Diego, CA, March 13-17, **2005**.
92. The Collegiate Readership Program and Its Integration into the Chemistry Classroom with Chemistry is in the News  
Kathleen O'Brien, Carole Douglas, Kathleen Carson, Yongqiang John Sui, Cecelia Koetting, and **Rainer Glaser**  
Poster Presentation, Teaching Renewal Conference, Columbia, MO, Feb. 24-26, **2005**.
91. Anisotropic Effects of the DNA Environment on Nitrosative Nucleobase Deamination. A Combined ab Initio and Molecular Dynamics Study  
Hong Wu and **Rainer Glaser**  
Poster Presentation, Computational Chemical Dynamics from Gas-Phase to Condensed-Phase Systems, Minnesota Supercomputer Institute, University of Minnesota, Oct. 7-9, **2004**.
90. Anisotropic effects of the DNA environment on the rotational barrier of 5-cyanoamino-1*H*-imidazole-4-carboxylic acid

- Rainer Glaser** and Hong Wu  
Poster, Division of Chemical Toxicology, 228<sup>th</sup> ACS National Meeting, Philadelphia, PA, Aug. 22-26, **2004**.
89. Oxanosine: A substrate of adenosine deaminase  
**Rainer Glaser**, Papiya Majumdar, Hong Wu, and **Peter Tipton**  
Poster, Division of Chemical Toxicology, 228<sup>th</sup> ACS National Meeting, Philadelphia, PA, Aug. 22-26, **2004**.
88. Acyclic cyanoimine or pyrimidine? Synthesis, reactions, and toxicological relevance of 5-cyanoamino-4-imidazolecarboxamide  
**Rainer Glaser** and Ming Qian  
Poster, Division of Chemical Toxicology, 228<sup>th</sup> ACS National Meeting, Philadelphia, PA, Aug. 22-26, **2004**.
87. *Chemistry is in the News* Webtool: Facilitating science collaboration and communication  
**Rainer Glaser**, Zhengyu Wu, Yongqiang Sui, Brian Hodgen, and Kathleen Carson  
Poster, Division of Chemical Education, 228<sup>th</sup> ACS National Meeting, Philadelphia, PA, Aug. 22, **2004**.
86. Imidazole ring formation in gas phase ion chemistry  
Brian Hodgen, Hong Wu, and **Rainer Glaser**  
Poster Presentation, Division of Physical Chemistry. CERM2004, 36<sup>th</sup> ACS Central Regional Meeting, IUPUI Hotel and Conference Center, Indianapolis, IN, June 2, **2004**.
85. Crystal engineering with arene-arene interactions and halogen bonding to achieve perfect dipole parallel alignment in molecular crystals  
Nathan Knotts and **Rainer Glaser**  
Organic Chemistry Day, Department of Chemistry, University of Missouri, Columbia, MO, April 24, **2004**.
84. Structure-isomeric G-to-G cross-links  
Ming Qian and **Rainer Glaser**  
Organic Chemistry Day, Department of Chemistry, University of Missouri, Columbia, MO, April 24, **2004**.
83. Synthesis of 5-Cyanoimino-Imidazole-4-Carboxamide and their Cyclization to Purines  
Ming Qian and **Rainer Glaser**  
Poster Presentation, 38<sup>th</sup> National Organic Symposium, Indiana University, Bloomington, IN, June 8-12, **2003**.
82. Experimental Evidence for Pyrindine Ring-Opening and Reclosure Pathways In Nitrosative Guanosine Deamination  
Sundeep Rayat and **Rainer Glaser**  
Poster Presentation, 38<sup>th</sup> National Organic Symposium, Indiana University, Bloomington, IN, June 8-12, **2003**.
81. Chemical Mechanism of Nitrosative DNA Base Deaminations: Ab initio Theoretical Studies Reveal Nucleophilic Reactions Without Transition States  
Sundeep Rayat, Zhengyu Wu, Brian Hodgen, Karen Williams, and **Rainer Glaser**  
Poster Presentation, Organic Chemistry Day, University of Missouri, Columbia, MO, April 26, **2003**.
80. <sup>13</sup>C-NMR Study of Halogen Bonding of Haloarenes with DMSO. Measurements of Solvent Effects and Theoretical Analysis

- Hong Wu, Naijun Chen, Nathan Knotts, and **Rainer Glaser**  
Poster Presentation, Organic Chemistry Day, University of Missouri, Columbia, MO, April 26, **2003**.
79. 4-Carboxyamidyl-5-Cyanoimino-Imidazoles and Their Cyclizations: Studies of Pyrimidine Ring-Opened Intermediates in Nitrosative Guanine Deamination  
Ming Qian and **Rainer Glaser**  
Poster Presentation, Organic Chemistry Day, University of Missouri, Columbia, MO, April 26, **2003**.
78. Chemical Mechanism of Nitrosative DNA Base Deaminations: Ab initio Theoretical Studies Reveal Nucleophilic Reactions Without Transition States  
Sundeep Rayat, Zhengyu Wu, Brian Hodgen, Karen Williams, and **Rainer Glaser**  
Poster Presentation, Life Sciences Week, University of Missouri, Columbia, MO, March 6, **2003**.
77. Mechanistic Studies of Nitrosative Guanine Deamination  
Sundeep Rayat and **Rainer Glaser**  
Poster Presentation, Recruiting Weekend, University of Missouri-Columbia, Feb. 21, **2003**.
76. Protein Studies Using Dipole-Aligned Materials. Theoretical and Experimental Engineering of Azine Designs  
Nathan Knotts, Josh Ratchford, and **Rainer Glaser**  
Poster Presentation, Recruiting Weekend, University of Missouri, Columbia, MO, Feb. 21, **2003**.
75. Endogenous nitrosation chemistry in carcinogenesis: An ab initio theoretical study of decomposition reactions of cyclic  $\alpha$ -hydroxynitrosamines  
**Rainer Glaser**, Hong Wu, and Richard Loeppky  
224<sup>th</sup> ACS National Meeting, Boston, MA, Aug. 18-22, **2002**.
74. Nitrosative DNA base deamination: A theoretical study of the hydrolysis of the DNA base diazonium ions. Activated Reactions Without Transition States.  
**Rainer Glaser**, Sundeep Rayat, Zhengyu Wu, Brian Hodgen, and Karen Williams  
6th World Congress of Theoretically Oriented Chemists, Lugano, Switzerland, Palazzo dei Congressi, Aug. 4-9, **2002**.
73. Independent Synthesis Of Pyrimidine Ring-Opened Intermediates Of Nitrosative Cytosine And Guanine Deamination And Their Recyclizations  
Sundeep Rayat, Ming Qian, and **Rainer Glaser**  
Organic Chemistry Day, University of Missouri, Columbia, MO, April 27, **2002**.
72. Computational Analysis of the Origin of the Disorder in a Highly Dipole-Parallel Aligned Molecular Crystal  
Zhengyu Wu, Michael Lewis, and **Rainer Glaser**  
Organic Chemistry Day, University of Missouri, Columbia, MO, April 27, **2002**.
71. Bimolecular Nucleophilic Substitution of an Anion by an Anion. A Theoretical Study of Phenylboronic Acids as a Source of Phenyl Anions  
Nathan Knotts and **Rainer Glaser**  
34<sup>th</sup> Midwest Theoretical Chemistry Conference, Supercomputing Institute for Digital Simulation and Advanced Computation, Minneapolis, MN, Oct. 5-6, **2001**. PDF.
70. Nitrosative Adenine Deamination. A Quantum Mechanical Study of the Decomposition Pathways of Adeninediazonium Ion

- Brian Hodgen, Sundeep Rayat, and **Rainer Glaser**  
34<sup>th</sup> Midwest Theoretical Chemistry Conference, Supercomputing Institute for Digital Simulation and Advanced Computation, Minneapolis, MN, Oct. 5-6, **2001**. PDF.
69. Endogenous Nitrosation Chemistry in Carcinogenesis. Retro-Ene Reactions of Cyclic  $\alpha$ -Hydroxynitrosamines  
Hong Wu, **Rainer Glaser**, and Richard Loeppky  
34<sup>th</sup> Midwest Theoretical Chemistry Conference, Supercomputing Institute for Digital Simulation and Advanced Computation, Minneapolis, MN, Oct. 5-6, **2001**. PDF.
68. Benzene Quadrupolarity and Arene-Arene Interactions  
Zhengyu Wu and **Rainer Glaser**  
34<sup>th</sup> Midwest Theoretical Chemistry Conference, Supercomputing Institute for Digital Simulation and Advanced Computation, Minneapolis, MN, Oct. 5-6, **2001**. PDF.
67. Nitrosative Guanine Deamination: A Quantum Mechanical Study of Carbodiimide - Cyanoamine Tautomerization in the Pyrimidine Ring-Opened Intermediate  
Sundeep Rayat and **Rainer Glaser**  
34<sup>th</sup> Midwest Theoretical Chemistry Conference, Supercomputing Institute for Digital Simulation and Advanced Computation, Minneapolis, MN, Oct. 5-6, **2001**. PDF.
66. Nitrosative deamination of guanine: An ab initio theoretical study of the bimolecular nucleophilic aromatic substitution  
Karen Williams, Sundeep Rayat, and **Rainer Glaser**  
Life Sciences Undergraduate Research Opportunity Program, 12<sup>th</sup> Annual Summer Science Research Symposium, University of Missouri, Aug. 2, **2001**.
65. Nitrosative Cytosine Deamination: A Novel Mechanism for Mutagenesis  
Sundeep Rayat and **Rainer Glaser**  
Organic Chemistry Day, University of Missouri, April 28, **2001**. PDF.
64. Experimental Realization of Triple T-Contacts: An Improved Design for Preparing Dipole Parallel-Aligned Crystals  
Michael Lewis and **Rainer Glaser**  
Organic Chemistry Day, University of Missouri, April 28, **2001**. PDF.
63. Nitrosative Deamination of Adenine Causes DNA Damage  
Brian Hodgen, Sundeep Rayat, and **Rainer Glaser**  
LS UROP Spring Symposium, University of Missouri, April 25, **2001**. PDF.
62. Internet Presentation: Chemistry in Context: Implementing Authentic Learning Activities in Large Lecture Chemistry Courses  
**Rainer Glaser**  
MU's Celebration of Teaching & Learning Technology Fair, Nov. 10, **2000**, 9am-noon, The Reflector, Townsend Hall.
61. Nitrosative Guanine Deamination: Tautomerization In The Pyrimidine Ring-Opened Intermediate  
Sundeep Rayat and **Rainer Glaser**  
35<sup>th</sup> ACS Midwest Regional Meeting, St. Louis, MO, Oct. 25-28, **2000**.
60. Aggregation of Cytosine With Guaninediazonium Ion: Double Proton Transfer and the Mechanism of Dediazonation  
Michael Lewis and **Rainer Glaser**  
35<sup>th</sup> ACS Midwest Regional Meeting, St. Louis, MO, Oct. 25-28, **2000**.



59. Guanine Deamination: Is Deglycation a Possibility?  
Sundeep Rayat and **Rainer Glaser**  
33<sup>rd</sup> Midwest Theoretical Chemistry Conference, University of Iowa, Iowa City, IA, May 25-27, **2000**.
58. Are Carbene-Carbenium Species Plausible Reactive Intermediates in the Deamination of Guanine? An Ab Initio Study  
**Rainer Glaser**  
33<sup>rd</sup> Midwest Theoretical Chemistry Conference, University of Iowa, Iowa City, IA, May 25-27, **2000**.
57. Benzene Quadrupolarity. A Study of Theoretical Level Dependencies  
Zhengyu Wu and **Rainer Glaser**  
Organic Chemistry Day, Department of Chemistry, University of Missouri, Columbia, MO, April 22, **2000**.
56. NMR Spectroscopy as a Probe for the Azine Functional Group's Ability to Inhibit Through-Conjugation  
Michael Lewis and **Rainer Glaser**  
Organic Chemistry Day, Department of Chemistry, University of Missouri, Columbia, MO, April 22, **2000**.
55. Guanine Deamination and Deglycation: An Ab Initio Study  
Sundeep Rayat and **Rainer Glaser**  
Organic Chemistry Day, Department of Chemistry, University of Missouri, Columbia, MO, April 22, **2000**.
54. Nitrogen-Separated Ion Pairs or Diazonium - Hydroxide Ion Pair? A Study of Dinitrogen Extrusion from Benzyldiazohydroxide  
Richard Nichols and **Rainer Glaser**  
Organic Chemistry Day, Department of Chemistry, University of Missouri, Columbia, MO, Memorial Union, May 1, **1999**.
53. An ab Initio Study of Carboxylic Acid Addition to Carbodiimide  
Thomas Carl, Michael Lewis, and **Rainer Glaser**  
Organic Chemistry Day, Department of Chemistry, University of Missouri-Columbia, Memorial Union, May 1, **1999**.
52. Internet Presentation: Websites as Instructional Media  
**Rainer Glaser**  
Teaching in Organic Chemistry Symposium, Department of Chemistry, Lincoln, NE, April 24, **1999**.
51. Nitrogen-Separated Ion Pairs or Diazonium - Hydroxide Ion Pair? A Study of Dinitrogen Extrusion from Benzyldiazohydroxide  
Richard Nichols, Graeme Day, and **Rainer Glaser**  
1999 Spring Undergraduate Research Science Symposium, University of Missouri, Columbia, MO, Stotler Lounge, Memorial Union, April 21, **1999**.
50. An ab Initio Study of Carboxylic Acid Addition to Carbodiimide  
Thomas Carl, Michael Lewis, and **Rainer Glaser**  
1999 Spring Undergraduate Research Science Symposium, University of Missouri, Columbia, MO, Stotler Lounge, Memorial Union, April 21, **1999**.

49. Nitrogen-Separated Ion Pairs or Diazonium - Hydroxide Ion Pair? A Study of Dinitrogen Extrusion from Benzyldiazohydroxide  
Richard Nichols, Graeme Day, and **Rainer Glaser**  
Division of Organic Chemistry, 33<sup>rd</sup> ACS Regional Meeting, Wichita, KS, Nov. 4-6, **1998**.
48. Internet Presentation: 3-Methyl-4,5,6,7-tetrafluoro-1*H*-indazole: Synthesis, Structure, Spectroscopy and ab Initio Computational Study  
**Bruce Hathaway** (a), Graeme Day (b), Michael Lewis (b), and **Rainer Glaser** (b), (a)  
Department of Chemistry, Southeast Missouri State University, Cape Girardeau, MO, (b)  
Department of Chemistry, University of Missouri, Columbia, MO  
On-site and local version. ECHET'98, Electronic Conference on Heterocyclic Chemistry, June 29 - July 24, **1998**.
47. **Internet Presentation:** The Wakonse Conference on College Teaching. The Wakonse Foundation, Miniwanca Conference Center, Shelby, MI, May 21-26, **1998**.
46. Crystalline Molecular Organic Materials for Nonlinear Optics. Asymmetrization of Azines and Butadienes  
Sarah Meyer and **Rainer Glaser**  
Organic Chemistry Day, Department of Chemistry, University of Missouri, April 25, **1998**.
45. Molecular Crystalline Organic Ferroelectric NLO Materials. The Crystal Structures of the Highly Dipole Parallel Aligned Material 4-Methoxy-4'-Chloroacetophenone Azine.  
Michael Lewis, Charles L. Barnes, and **Rainer Glaser**  
Organic Chemistry Day, Department of Chemistry, University of Missouri, April 25, **1998**.
44. Crystalline Molecular Organic NLO Materials. Asymmetrization of Azines and Butadienes  
Sarah Meyer and **Rainer Glaser**  
Division of Organic Chemistry, 215<sup>th</sup> ACS National Meeting, Dallas, TX, March 28 - April 2, **1998**.
43. **Internet Presentation:** Molecule of the Month, Dec. **1997**, CHIME and HTML.
42. **Internet Presentation:** Third Annual MU Webpage Showcase. Memorial Union Computer Lab, University of Missouri, Columbia, MO, Nov. 24, **1997**.
41. Multipole Methods in Crystal Lattice Sums  
Don Steiger, **Calvin Ahlbrandt**, and **Rainer Glaser**  
Division of Physical Chemistry (#260), 32<sup>nd</sup> ACS Midwest Regional Meeting, Lake of the Ozarks, Osage Beach, MO, Oct. 29-31, **1997**.
40. Nucleophilic Additions to Cumulenes: A Quadratic CI Study of the Hydrolysis of the Parent Carbodiimide  
Michael Lewis and **Rainer Glaser**  
Division of Physical Chemistry, 214<sup>th</sup> ACS National Meeting, Las Vegas, NV, Sept. 7-11, **1997**.
39. Nucleophilic Additions to Cumulenes: A Quadratic CI Study of the Hydrolysis of the Parent Carbodiimide  
Michael Lewis and **Rainer Glaser**  
Symposium on "Structural and Mechanistic Organic Chemistry. A Tribute to Norman L. Allinger." Sponsored jointly by the International Academy of Quantum Molecular Sciences and the World Association of Theoretically Oriented Chemists (WATOC). University of Georgia, Athens, GA, June 4-7, **1997**. Pictorial.

38. **Internet Presentation:** Mathematical Derivation of an Alternative Fast Multipole Method.  
Full Poster  
Don Steiger (a), **Calvin Ahlbrandt** (a), and **Rainer Glaser** (b), (a) Department of Mathematics and (b) Department of Chemistry  
30<sup>th</sup> Midwest Theoretical Chemistry Conference, University of Illinois, Urbana-Champaign, IL, May 22-24, **1997**. Pictorial.
37. Nucleophilic Additions to Cumulenes: Water Catalysis of the Hydrolysis of the Parent Carbodiimide  
Michael Lewis and **Rainer Glaser**  
30<sup>th</sup> Midwest Theoretical Chemistry Conference, University of Illinois, Urbana-Champaign, IL, May 22-24, **1997**. Pictorial.
36. **Internet Presentation:** Second Annual MU Webpage Showcase. 147 Stanley Hall, University of Missouri-Columbia, Nov. 26, **1996**.
35. **Internet Presentation:** Graphical Analysis of Cation-Dinitrogen Interactions with Density Color Coded Gradient Vector Fields  
David Farmer and **Rainer Glaser**  
Division of Physical Chemistry (#183), 31<sup>st</sup> ACS Midwest Meeting, Sioux Falls, SD, Nov. 6-8, **1996**. Pictorial.
34. Crystalline Molecular NLO Materials. Asymmetrization of Azines and Butadienes  
Sarah Meyer, Grace Shiahuy Chen, and **Rainer Glaser**  
Division of Organic Chemistry (#173), 31<sup>st</sup> ACS Midwest Meeting, Sioux Falls, SD, Nov. 6-8, **1996**. Pictorial.
33. Dipole Aligned Molecular Crystalline Materials for Nonlinear Optics  
**Rainer Glaser** and Grace Shiahuy Chen  
Gordon Conference on Electron Donor Acceptor Interactions, Salve Regina University, Newport, RI, Aug. 11-16, **1996**.
32. Highly Dipole Aligned Molecular Crystalline Materials for Optical Applications  
**Rainer Glaser** and Grace Shiahuy Chen  
Symposium on "Polymeric and Organic Materials for Optical Applications," 212<sup>th</sup> ACS National Meeting, Orlando, FL, Aug. 27, **1996**.
31. Parallel Dipole-Alignment in Crystals. Theory and Prototype Realization  
Grace Shiahuy Chen (a), Don Steiger (b), Rainer Glaser (a), and Calvin Ahlbrandt (b), (a) Department of Chemistry and (b) Department of Mathematics  
29<sup>th</sup> Midwest Theoretical Chemistry Conference, Indiana University-Purdue University Indianapolis, June 1, **1996**.
30. Azines as Efficient Conjugation Stoppers. A New Approach to Low-Dipole Organic Molecular NLO Materials  
**Rainer Glaser**, Grace Shiahuy Chen, and Sarah Meyer  
29<sup>th</sup> Midwest Theoretical Chemistry Conference, Indiana University-Purdue University Indianapolis, May 30, **1996**.
29. Dipole-Alignment in Crystals: Theory and Realization  
**Rainer Glaser** (a), Grace Shiahuy Chen (a), Don Steiger (b) and **Calvin Ahlbrandt** (b), (a) Department of Chemistry and (b) Department of Mathematics  
Organic Chemistry Day, Department of Chemistry, University of Missouri, Columbia, MO, April 27, **1996**.

28. Electron Density Relaxation in Dissociations of Benzenediazonium Ions. An Interpretation of Opposing Sign Reaction Constants in Dual Substituent Parameter Taft Equations  
**Rainer Glaser**, Christopher J. Horan, and **Heinrich Zollinger**  
Gordon Conference on Electron Distribution and Chemical Bonding, Plymouth State College, Plymouth, NH, July 2-7, **1995**.
27. Bonding Between N<sub>2</sub>, NCH & CNH and the Parent Group IV Carbene Homologues H<sub>2</sub>E (E = C, Si, Ge, Sn, Pb). An ab initio Study of Analogues and Homologues of Diazomethane  
**Paul Haney** (a), **Rainer Glaser** (a), **Hansjörg Grützmacher** (b), (a) University of Missouri-Columbia, (b) Universität Freiburg  
28<sup>th</sup> Midwest Theoretical Chemistry Conference, Northwestern University, Evanston, IL, May 12, **1995**.
26. Classical and Non-Classical Diazonium Ions. An ab Initio Study of the Diazotized Nucleic Acids Cytosine, Adenine, and Guanine  
**Man-Shick Son** and **Rainer Glaser**  
Organic Chemistry Day, University of Missouri, Columbia, MO, April 21, **1995**.
25. Synthesis, Stereochemistry, NMR-Spectroscopy, and Optical Properties of Asymmetrical Acetophenone Azines  
**Jason Wilbur**, Aaron J. Bernabo, Grace S. Chen, and **Rainer Glaser**  
Organic Chemistry Day, University of Missouri, Columbia, MO, April 21, **1995**.
24. Opposing Sign Dual Substituent Taft Equation and Electron Density Relaxation in Diazonium Ion Dissociations  
**Rainer Glaser** and **Christopher J. Horan**  
Organic Chemistry Day, University of Missouri, Columbia, MO, April 21, **1995**.
23. Bonding Between Dinitrogen and the Parent Group IV Carbene Homologues H<sub>2</sub>E (E = C, Si, Ge, Sn, Pb). An ab Initio Study of H<sub>2</sub>ENN  
**Paul Haney** (a), **Rainer Glaser** (a), and **Hansjörg Grützmacher** (b), (a) University of Missouri-Columbia and (b) Universität Freiburg  
Organic Chemistry Day, University of Missouri, Columbia, MO, April 21, **1995**.
22. Conformational Analysis of *para*-Substituted Acetophenone Azines in the Solid State, in Solution, and in the Gas Phase  
**Mitchell Anthamatten**, Grace Shiahuy Chen, and **Rainer Glaser**  
Organic Chemistry Day, University of Missouri, Columbia, MO, April 24, **1994**.
21. Correlation Effects on Spin Densities. A Study of Radicals XH<sub>n</sub> Using UHF, PUHF, MP2, CID, CCD, CISD, and QCISD Theory  
**Godwin Sik-Cheung Choy** and **Rainer Glaser**  
Organic Chemistry Day, University of Missouri, Columbia, MO, April 24, **1994**.
20. Stereochemical Analysis of *para*-Substituted Acetophenone Azines in the Solid State, in Solution, and in the Gas Phase  
**Mitchell Anthamatten**, **Grace S. Chen**, and **Rainer Glaser**  
4<sup>th</sup> Annual Symposium for Undergraduates in Science, Engineering and Mathematics, Argonne National Laboratory, Nov. 5-6, **1993**.
19. On the Stereochemistry of Norgestimate. An ab Initio Study of *E,Z* Preferences of the Unsaturated Oxime in the A-Ring  
**Benjamin M. Marshall** and **Rainer Glaser**  
1993 ChemCY Symposium, Iowa State University, Ames, IA, Oct. 16, **1993**.

18. Stereochemistry of Azines in the Solid State, in Solution, and in the Gas Phase  
Mitchell Anthamatten, Grace S. Chen, and **Rainer Glaser**  
1993 ChemCY Symposium, Iowa State University, Ames, IA, Oct. 16, **1993**.
17. Electron and Spin Densities of Radicals: UHF, PUHF, and CASSCF  
Godwin Sik-Cheung Choy and **Rainer Glaser**  
Physical Chemistry Division (#219), 206<sup>th</sup> ACS National Meeting, Chicago, IL, Aug. 25, **1993**.
16. Experimental and Theoretical Studies of Electron Density Distributions in Molecular, Ionic, and Covalent Crystals  
Zhangbo Hu, **Rainer Glaser**, and **Fred Ross**  
Gordon Research Conference on "Electron Distribution and Chemical Bonding," Plymouth State College, Plymouth, NH, July 20-24, **1992**.
15. Electron and Spin Density Analysis of Spin-Projected Unrestricted Hartree-Fock Density Matrices of Radicals  
**Rainer Glaser** and Godwin Sik-Cheung Choy  
Gordon Research Conference on "Electron Distribution and Chemical Bonding," Plymouth State College, Plymouth, NH, July 20-24, **1992**.
14. Electron Density Analysis of Neighboring Group Interactions in Aromatic 2-Carboxyldiazonium Ions. Theory and Experiment  
Christopher J. Horan, Christine Bowersox, and **Rainer Glaser**  
The 2<sup>nd</sup> St. Louis Region Gathering on Computer-Aided Molecular Design, May 13, **1992**.
13. Non-Synergistic Hydrogen Bonding in the WATSON-CRICK-Model Nucleic Acid Base Pairs ADENINE-THYMINE and GUANINE-CYTOSINE  
**Rainer Glaser** and Benjamin Harris  
The 2<sup>nd</sup> St. Louis Region Gathering on Computer-Aided Molecular Design, May 13, **1992**.
12. Incipient Nucleophilic Attack as a Probe for the Electronic Structure of Diazonium Ions. The ortho Carboxymethylbenzenediazonium System  
Christine Bowersox and **Rainer Glaser**  
Howard Hughes Undergraduate Research Intern Poster Presentation, University of Missouri, Columbia, MO, April 29, **1992**.
11. First Crystal Structures of Aliphatic Diazonium Ions. Theory, Spectroscopy, and Crystallography of Vinyl Diazonium Ions  
Grace S. Chen, **Rainer Glaser**, and Charles L. Barnes  
Organic Chemistry Day, University of Missouri, Columbia, MO, April 25, **1992**.
10. Electron and Spin Density Analysis of Spin-Projected Unrestricted Hartree-Fock Density Matrices of Radicals  
**Rainer Glaser** and Godwin Sik-Cheung Choy  
Physical Chemistry Division (#176), 26<sup>th</sup> ACS Midwest Meeting, Omaha, NE, Nov. 8, **1991**.
9. Electron and Spin Density Analysis of Spin-Projected Unrestricted Hartree-Fock Density Matrices of Radicals  
Godwin Sik-Cheung Choy and **Rainer Glaser**  
Presented at the Organic Chemistry Day of the University of Missouri-Columbia, April 26, 1991, and at the St. Louis Gathering on Computer-Aided Molecular Design and Computational Chemistry, May 17, **1991**.
8. Video Presentation: Vibrate: A Normal Mode Visualization Program

- M. Kirk Hall and **Rainer Glaser**  
Howard Hughes Undergraduate Research Intern Poster Presentation, University of Missouri, Columbia, April 25, 1991, at the Organic Chemistry Day of the University of Missouri-Columbia, April 26, 1991, and at the St. Louis Gathering on Computer-Aided Molecular Design and Computational Chemistry, May 17, **1991**.
7. Analysis of Neighboring Group Interactions Based on Topological Properties  
M. Kirk Hall, Christopher J. Horan, and **Rainer Glaser**  
Howard Hughes Undergraduate Research Intern Poster Presentation, University of Missouri, Columbia, April 25, 1991, at the Organic Chemistry Day of the University of Missouri-Columbia, April 26, 1991, and at the St. Louis Gathering on Computer-Aided Molecular Design and Computational Chemistry, May 17, **1991**.
  6. Electron Correlation Effects on Electron Density Distributions of Heterosubstituted Diazonium Ions  
Godwin Sik-Cheung Choy and **Rainer Glaser**  
Organic Chemistry Division (#257), 25<sup>th</sup> ACS Midwest Meeting, Manhattan, KS, Nov. 9, **1990**.
  5. Nitrogen Inversion in Methyldiazohydroxide. An ab Initio Study  
M. Kirk Hall and **Rainer Glaser**  
Howard Hughes Undergraduate Research Intern Summer Poster Presentation. University of Missouri, Columbia, MO, Aug. 7, **1990**.
  4. Electron Density Distribution in 2,4-Dihydroxybenzophenone: X-Rays, Neutrons, Theory  
Qian-yan Xie, Rainer Glaser, **Elmer Schlemper**, and **Fred Ross**  
ACA National Meeting, New Orleans, LA, March **1990**.
  3. Phosphorus Analogues of Diazonium Ions?  
**Rainer Glaser**  
Departmental Poster Session, Yale University, Nov. **1988**.
  2. Are Diphosphonium and/or Tetraphosphonium Ions Synthetically Accessible?  
**Rainer Glaser**  
Organic Chemistry Division (#21), 196<sup>th</sup> ACS National Meeting, Los Angeles, CA, Sept. 25, **1988**.
  1. Theoretical Study of Metalated Oximes. Models for Metalated Oxime Ethers  
Rainer Glaser and **Andrew Streitwieser, Jr.**  
Organic Chemistry Division (#2), 194<sup>th</sup> ACS National Meeting, New Orleans, LA, Aug. 30, **1987**.

## **I. Media Appearances**

Communication activities mostly began with interviews (34) which led to media appearances either directly or by way of press release (8). The more prominent media events have included articles in national print media (3 in C&EN, 1 in Science) and tens of appearances in major popular media (USAToday, Fox, MSNBC, BBC...). The activities have resulted in appearances in regional media by way of newspapers (4), radio (4) and TV (1), as well as in numerous appearances in Campus media. These events have spawned a flux of secondary media appearances by way of an amazing variety of online venues with global reach and, for example, via Asian News International (ANI). Only a few of these secondary events are

included below; the following list is not and will never be complete. This section includes embedded direct links to online material.

170. [Paper proves fluorination allows for CO<sub>2</sub> capture from air at neutral pH \(PDF\)](#): Kimber Crull, [eConnections](#), Oct. 3, **2023**. Posted in [Accomplishments](#).
169. [S&T researchers discover new concept in supramolecular chemistry \(PDF\)](#): Kimber Crull, [eConnections](#), Oct. 3, **2023**. Posted in [Accomplishments](#).
168. [Researchers publish in 'ChemPhysChem'\(PDF\)](#): Kimber Crull, [eConnections](#), July 11, **2023**. Posted in [Accomplishments](#).
167. [Frimpong named vice provost of graduate education \(PDF\)](#): [eConnections](#), May 16, **2023**.
166. Remarks by interim Vice Provost for Graduate Education ([MP4](#)), [Commencement Ceremonies](#), Master's (M.S.) Degree Graduates (2 OF 2), Saturday, May 13, **2023**, 3 pm, Gale Bullman Building.
165. Remarks by interim Vice Provost for Graduate Education ([MP4](#)), [Commencement Ceremonies](#), Master's (M.S.) Degree Graduates (1 OF 2), Saturday, May 13, **2023**, 10 am, Gale Bullman Building.
164. Remarks by interim Vice Provost for Graduate Education ([MP4](#)), [Commencement Ceremonies](#), Doctoral (Ph.D.) Degree Graduates, Friday, May 12, **2023**, 6 pm, Gale Bullman Building.
163. [Graduate Research Showcase winners announced \(PDF\)](#): [eConnections](#), May 2, **2023**.
162. ['CrystEngComm' cover story features S&T research \(PDF\)](#): [eConnections](#), May 2, **2023**.
161. [Attend the Graduate Research Showcase \(PDF\)](#): [eConnections](#), April 10, **2023**.
160. [Learn about intellectual property March 15 \(PDF\)](#): Kimber Crull, [eConnections](#), March 13, **2023**.
159. [Staff Spotlight: Sharon Matson \(PDF\)](#): Kimber Crull, [eConnections](#), Feb. 16, **2023**.
158. [S&T researchers publish in chemistry journals \(PDF\)](#): Kimber Crull, [eConnections](#), Feb. 7, **2023**. Posted in [Accomplishments](#).
157. [Commencement photos from Phelps County Focus](#), [Commencement Ceremonies](#), December 17, 2022, Gale Bullman Building.
156. Remarks by interim Vice Provost for Graduate Education ([MOV](#)), [Commencement Ceremonies](#), Master's (M.S.) Degree Graduates (2 OF 2), Saturday, December 17, 2022, 3 pm, Gale Bullman Building.
155. Remarks by interim Vice Provost for Graduate Education ([MOV](#)), [Commencement Ceremonies](#), Master's (M.S.) Degree Graduates (1 OF 2), Saturday, December 17, 2022, 10 am, Gale Bullman Building.
155. Remarks by interim Vice Provost for Graduate Education ([MOV](#)), [Commencement Ceremonies](#), Doctoral (Ph.D.) Degree Graduates, Friday, December 16, 2022, 6 pm, Gale Bullman Building.
154. [Researchers publish article in 'ChemPlusChem' \(PDF\)](#): Kimber Crull, [eConnections](#), December 6, 2022. Posted in [Accomplishments](#).
153. [S&T gets cover story of 'Journal of Physical Chemistry A' \(PDF\)](#): Kimber Crull, [eConnections](#), December 6, 2022. Posted in [Accomplishments](#).
152. [Researchers present at ACS regional meeting \(PDF\)](#): Kimber Crull, [eConnections](#), December 6, 2022. Posted in [Accomplishments](#).
151. [Research published in 'ACS Omega' \(PDF\)](#): Kimber Crull, [eConnections](#), December 6, 2022. Posted in [Accomplishments](#).
150. [Wood named technical editor for graduate education \(PDF\)](#): Kimber Crull, [eConnections](#), December 1, **2022**.



149. [Reimburse prospective graduate students who visit S&T \(PDF\)](#): Laura Studyvin, [eConnections](#), Nov. 11, **2022**.
148. [Kim named faculty fellow for graduate education \(PDF\)](#): Kimber Crull, [eConnections](#), Nov. 3, **2022**.
147. [Graduate studies is now graduate education \(PDF\)](#): Kimber Crull, [eConnections](#), Aug. 25, **2022**.
146. [Chemistry in Pictures: Complicated crystals \(PDF\)](#): Craig Bettenhausen, [C&EN](#), July 19, **2022**.
145. [Glaser serves as interim vice provost of graduate education \(PDF\)](#): Kimber Crull, [eConnections](#), July 6, **2022**.
144. [Rainer Glaser elected fellow of the American Chemical Society \(PDF\)](#): Missouri S&T, [Phelps County FOCUS.COM](#), Aug. 2, **2021**.
143. [Glaser elected ACS fellow \(PDF\)](#): Velvet Hassner, [eConnection](#), Aug. 3, **2021**.
142. [Announcing the 2021 ACS Fellows - 49 new fellows honored for their contributions to science \(PDF\)](#): *Chem. & Eng. News* **2021**, 99, Issue 29 of Aug. 2, **2021**.
141. [Chemistry Nobel Laureate to present fifth Stoffer Lecture \(PDF\)](#): Sarah Potter, [News and Events](#), April 2, **2021**.
140. [Missouri S&T undergraduates to exhibit research to state legislators virtually \(PDF\)](#): Peter Ehrhard, [News and Events](#), April 1, **2021**.
139. [Experts Weigh in on Current Trends \(PDF\)](#): Alex Johnson, [ZIPPIA](#), Dec. 16, **2020**.
138. [Color research published in chemistry journal \(PDF\)](#): Velvet Hasner, [eConnections](#), Aug. 4, **2020**.
137. [Research on Tab \(PDF\)](#): Rainer Glaser, *CO<sub>2</sub> Sequestration from Air: The Costs and Consequences of Action and of Inaction*, Public House, Rolla, MO, Feb. 19, **2020**, 6 pm.
136. [Grants go to 11 projects for 150th celebration](#), Posted by Velvet Hasner. [eConnections](#), Jan. 6, **2020**. [PDF](#).
135. [Glaser garners ACS accolade](#), Posted by Velvet Hasner. [eConnections](#), June 4, **2019**. [JPG](#).
134. [Phage Display is Used to Discover Antibody Therapies](#), Chris Tachibana and Jenny Oehman. [Nordic Life Science](#), Issue of March 19, **2019**. [PDF](#).
133. [ST's Space Week is Nov. 5-10](#), Posted Oct. 31, **2018**. [PDF](#).
132. A Need for Speed - NSF Awards Grant to MU Researchers for Ultrafast Laser System, Posted Oct. 25, 2018. [PDF](#).
131. [Rainer Glaser named chair of chemistry at Missouri S&T](#) Posted April 26, **2018**. [PDF](#).
130. *CWP in China* Posted Aug. 29, **2017**. [PNG](#).
129. Contribution to the article [As easy as  \$\pi\$](#)  (based on Yirong Mo et al., *Chem. Sci.* **2016**, DOI: 10.1039/C6SC00454G) on the RSC [Chemistry World](#) website. Links to social media posts: [Twitter](#), [Twitter](#) again, and [Facebook](#). By Heather Powell, June 7, **2016**. [PDF](#)
128. *Teaching with Writing*, Presented by the [MU Campus Writing Program](#): *Instruction on Scientific Writing & Authoring, Scientific Peer Review, and Publication Ethics: An Assignment-Based Curriculum* By Rainer E. Glaser, Professor of Chemistry. Live, Fall **2015**.
127. Campus Writing Program, MU: *Chemistry Professor Embraces the Science of Writing*. By Stephanie Hiquiana, March 6, **2014**. [PDF](#).
126. *ACS Chemistry Ambassadors*. Video Project by Doug Dollemore: [REG Video](#). Feb. **2014**.
125. NEWS-MEDICAL.NET: [Study to make pesticide, methyl iodide safer](#). March 1, **2012**. [PDF](#).
124. FUTURITY.ORG: *Different mix may make pesticide safer*. By Christian Basi. March 1, **2012**. [PDF](#).

123. EurekAlert: [MU scientists study how to improve pesticide efficiency](#) Feb. 29, 2012. [PDF](#).
122. Food Science Chef: *Scientists investigate how to urge insecticide efficiency*. Feb. 29, 2012. [PDF](#).
121. PhysOrg.com: [Scientists study how to improve pesticide efficiency](#) . Feb. 29, 2012. [PDF](#).
120. Science Codex: [MU scientists study how to improve pesticide efficiency](#) . Feb. 29, 2012. [PDF](#).
119. MU News Bureau, Press Release: [MU Scientists Study How to Improve Pesticide Efficiency](#). By Brad Fischer. February 29, 2012. [PDF](#).
118. Regional Newspaper Columbia Tribune: [MU prof has been denied due process -- Reputations of Engel, MU are at stake](#). Letter to the Editor by Stephen Montgomery-Smith, Victoria Johnson, Keith Hardeman, Rainer Glaser, Sudarshan Loyalka, and Eddie Adelstein. January 23, 2011. [PDF](#).
117. Co-Organizer, October 27, 2010: Debate on Higher Education Sponsored by the AAUP, GSA, ASUM and GSA with the candidates for the seats in the MO House in the 21st, 23rd, 24th, and 25th Districts. Ms. Kelly Schultz (21st), Rep. Stephen Webber (23rd), Rep. Chris Kelly and Ms. Laura Nauser (24th), and Rep. Mary Still (25th).  
[Legislative Debate \(.MOV, Mac file\)](#), [Legislative Debate \(.WMV, PC/Windows file\)](#)  
*Candidates debate strategies to bridge budget gap*, Rudi Keller, *Columbia Tribune*, Oct. 28, 2010.  
*Anti-Schultz robo-calls stopped*, Rudi Keller, *Columbia Tribune*, Oct. 29, 2010.  
*Incumbent Chris Kelly tops Laura Nauser in 24th House District*, Rudi Keller, *Columbia Tribune*, Nov. 3, 2010.
116. American Chemical Society, Journals Department: [Ten most-accessed articles during July-September 2009](#). Dec. 4, 2009.
115. Regional newspaper [Columbia Tribune](#): *Grant aims to integrate disciplines*. Aug. 14, 2009. [PDF](#).
114. Online News of the [MU College of Arts & Science](#): *NSF grant promotes study in math and life sciences* Aug. 11, 2009. [PDF](#).
113. Regional Newspaper Missourian: *Missouri River float trip inspires interest in history, conservation* By Claire Meyer and Chelsea Sektnan (photography and online video), July 13, 2009. [PDF1](#). [PDF2](#).
112. Regional Newspaper Missourian: *Big Canoe River Float*. By Chelsea Sektnan, July 12, 2009.
111. KOMU TV: *Summer River Floating*. By Susan Steimle (story and video), July 11, 2009.
110. Regional Newspaper Columbia Tribune: *Gathering applauds Obama's summation*. By T. J. Greaney, Sept. 27, 2008. [PDF](#).
109. Campus Newspaper Maneater: *Faculty Council proposes controversial new grievance process*. By Scott Kanowsky, Sept. 12, 2008. [PDF](#).
108. Regional Newspaper Columbia Tribune: *Biden energizes crowd at ARC*. By Jason Rosenbaum, Sept. 9, 2008. [PDF](#).
107. Regional Newspaper Columbia Tribune: *Faculty grievance policy damaging to university*. By Rainer Glaser, Aug. 23, 2008. [PDF](#).
106. Regional Newspaper Columbia Tribune: *Faculty complaints*. By Abraham Mashshie, Aug. 10, 2008. [PDF](#).
105. Campus Newspaper Maneater: *Scientists, public talk about biofuels*. By Justin Myers, April 4, 2008. [PDF](#).
104. Portrait in 20th Anniversary Issue Cover of [Chemical Research in Toxicology](#). Jan. 2008 issue.
103. Interview on [KOPN 89.5 fm](#) Radio: *KOPN News at Five with Trevor Harris*, Dec. 18, 2007. The Mitchell Report in [PDF](#) (direct). [PDF](#) (local).

102. Interview for Regional Newspaper *Columbia Tribune: Performance drugs: Baseball, yes, but Columbia?* By Janese Heavin, Dec. 14, 2007. [PDF](#). Front Page of print edition.
101. Online News of the [MU College of Arts & Science](#): *MU professor available to discuss Mitchell Report and steroids*. Dec. 14, 2007. [PDF](#). Adapted from MU News Bureau Press Release.
100. Interview on Regional TV *KMIZ-TV Columbia-Jefferson City - ABC17*: Interview about the Mitchell Report. Evening News, Dec. 13, 2007.
99. Interview and Press Release: *MU Professor Available to Discuss the Mitchell Report and Steroids*. By Bryan C. Daniels, *MU News Bureau*, December 13, 2007. [PDF](#).
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