DEPT. OF CHEMISTRY and GRADUATE EDUCATION, MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY Chemistry of Anisotropic Materials

Research Topics

- Rubisco biomimetics for CO2 capture from air
- Ferrolelectric materials for nonlinear optics
- Oscillating chemical reactions: Video-based kinetic analysis and simulation by dynamic methods
- Layer models of enzyme activity: P450, Rubisco
- STEM Education: Scientific writing, peer review, science communication, science globalization

Key Words

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. Organic • Physical • Theoretical • Materials • Education

Contact Information

- Rainer E. Glaser, Dipl.-Chem., M.S., Ph.D.
- Professor of Chemistry
- 302 Schrenk Hall
- Email: glaserr@mst.edu
- WWW: https://glaserr.missouri.edu

Funding (after 2016)

- NSF, CHE: Biomimetic CO₂ Capture from Air
- NSF, MRI: Nonlinear Optical Materials
- ACS, PRF (ND): Polymerization Catalysts
- Carey Bottom Ethics Initiative





Selected Publications

Cover of the Issue! Polar Alignment of Parallel Beloamphiphile 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, in press.

Cover of the Nov. 11, 2021 Issue! *Computational Investigation of the Thermochemistry of the CO2 Capture Reaction by Ethylamine, Propylamine, and Butylamine in Aqueous Solution Considering the Full Conformational Space via Boltzmann Statistics. J. Schell, Kaidi Yang, and* Rainer Glaser. *J. Phys. Chem. A* **2021**, 125 (44), 9578-9593. DOI: <u>10.1021/acs.jpca.1c06294</u>. *Video colorimetry of single-chromophore systems based on vector analysis in the 3D color space: Unexpected hysteresis loops in oscillating chemical reactions.* Joseph Schell, Sara McCauley, and Rainer Glaser. *Talanta* **2020**, 220, 121303 (11 pp). DOI: <u>10.1016/j.talanta.2020.121303</u>.

Challenges of Globalization and Successful Adaptation Strategies in Implementing a 'Scientific Writing and Authoring' Course in China. Kaidi Yang, Cun-Yue Guo, and Rainer Glaser. J. Chem. Educ. **2018**, 95, 2155-2163. DOI: <u>10.1021/acs.jchemed.8b00384</u>



