

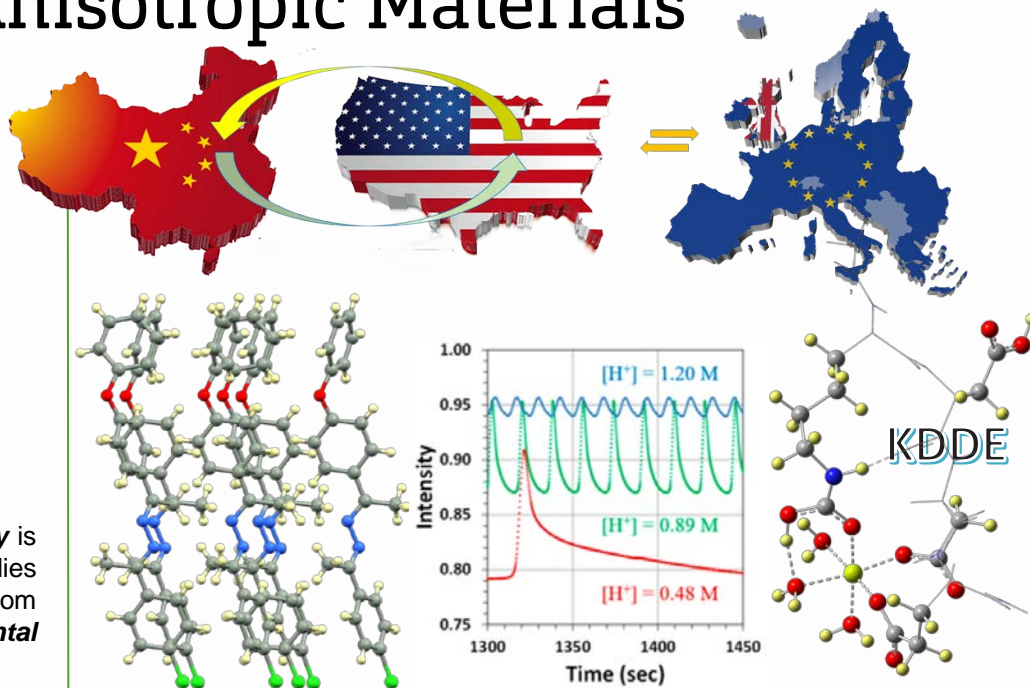
Chemistry of Anisotropic Materials

Research Topics

- Rubisco biomimetics for CO₂ capture from air
- Ferroelectric 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**



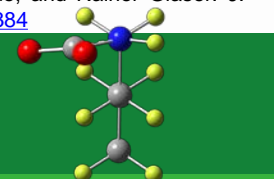
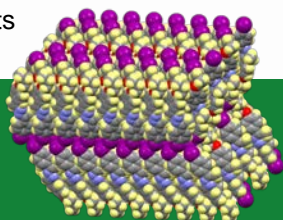
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Funding (after 2016)

- 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: [10.1021/acs.jpca.1c06294](https://doi.org/10.1021/acs.jpca.1c06294).

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: [10.1016/j.talanta.2020.121303](https://doi.org/10.1016/j.talanta.2020.121303).

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: [10.1021/acs.jchemed.8b00384](https://doi.org/10.1021/acs.jchemed.8b00384)