

## Friedrich Stricker, PhD

[friedrich.stricker@ist.ac.at](mailto:friedrich.stricker@ist.ac.at)

[LinkedIn](#); [Google Scholar](#)

### RESEARCH & TEACHING INTERESTS

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Organic chemist and materials scientist focused on creating multistate, stimuli-responsive materials that selectively respond to non-selective stimuli—drawing inspiration from the adaptive complexity of proteins. My research combines synthetic chemistry and materials design to enable applications in autonomous systems and multifunctional materials.

### RESEARCH EXPERIENCE

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- 2026 Incoming Assistant Professor**, Institute of Science and Technology Austria, Klosterneuburg, Austria (Start date Aug 1<sup>st</sup>)
- 2025–2026 Walter Benjamin Returning Fellow**, group of Silvia Vignolini, Max Planck Institute of Colloids and Interfaces, Potsdam, Germany
- 2022–2025 Walter Benjamin Postdoctoral Fellow**, group of Joanna Aizenberg, John A. Paulson School of Engineering & Applied Sciences, Harvard University, Cambridge, MA, USA

### EDUCATION

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- 2022 Ph.D. in Chemistry**, University of California Santa Barbara, USA  
Faculty Advisor: Javier Read de Alaniz  
Thesis: Donor-acceptor Stenhouse Adducts: Opportunity in Complexity
- 2018 M.Sc. in Biomedical Chemistry**, Johannes Gutenberg-Universität Mainz, Germany
- 2016 B.Sc. in Biomedical Chemistry**, Johannes Gutenberg-Universität Mainz, Germany

### PUBLICATIONS

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#### Selected Publications (\*authors contributed equally)

- Stricker, F.**, Sanchez, D., Raucci, U., Dolinski, N., Zayas, M., Hawker, C., Martinez, T., Read de Alaniz, J. A multi-stage single photochrome system for controlled photoswitching responses. *Nature Chemistry*, **2022**, *14*, 942–948.
- Stricker, F.\***, Peterson, J.\*, Sandlass, S., de Tagyos, A., Sroda, M., Seshadri, S., Gordon, M., Read de Alaniz, J. Selective control of donor-acceptor Stenhouse adduct populations with non-selective stimuli. *Chem*, **2023**, *9*, 1994–2005.
- Stricker, F.\***, Campos, J.\*, Clark, K. D., Park, M., Bailey, S. J., Kuenstler, A. S., Hayward, R. C., Read de Alaniz, J. Controlled Diels–Alder “Click” Strategy to Access Mechanically Aligned Main-Chain Liquid Crystal Networks. *Angew. Chem. Int. Ed.*, **2023**, *135*, e202214339.
- Stricker, F.\***, Clerc, M.\*, Ulrich, S., Sroda, M., Bruns, N., Boesel, L., Read de Alaniz J. Promoting the Furan Ring-Opening Reaction to Access New Donor–Acceptor Stenhouse Adducts with Hexafluoroisopropanol. *Angew. Chem. Int. Ed.*, **2021**, *60*, 10219–10227.

### First-Author Publications

5. **Stricker, F.**, Koelsch, J., Beil, S., Preiss, S., Waldvogel, S., Opatz, T., Besenius, P. Facile access to foldable redox-active flavin-peptide conjugates. *Org. Biomol. Chem.*, **2021**, *19*, 4483–4486.
6. **Stricker, F.\***, Sroda, M.\*, Peterson, J., Bernal, A., Read de Alaniz, J. Donor–acceptor Stenhouse adducts: exploring the effects of ionic character. *Chem. Eur. J.*, **2021**, *27*, 4183–4190.
7. **Stricker, F.**, Peterson, J., Read de Alaniz, J. Preparation of a Donor-Acceptor Stenhouse Adduct. *Org. Synth.* **2022**, *99*, 79.
8. **Stricker, F.**, Seshadri, S., Read de Alaniz, J., Donor-acceptor Stenhouse Adducts. In *Molecular Photoswitches: Synthesis, Properties, and Applications*; Pianowski, P., Wiley-VCH, **2022**, 304–325.

### Additional Publications

9. Yao, Y.\*, Wilborn, M.\*, Lemaire, B., Trigka, F., **Stricker, F.**, Li, S., Grinthal, A., Zhernenkov, M., Freychet, G., Wasik, P., Bennet, R., Tung, C., Kozinsky, B., Lerch, M., Wang, X., Aizenberg, J. Programming liquid crystal elastomers for multi-step ambidirectional deformability. *Science*, **2024**, *386*, 1161–1168.
10. Park, M., Campos, J., **Stricker, F.**, Read de Alaniz, J. Photo-responsive Diels–Alder based azobenzene-functionalized main-chain liquid crystal networks. *Journal of Materials Chemistry C*, **2024**, *12*, 11976–11981.
11. Sandlass, S., **Stricker, F.**, Fragoso, D., Read de Alaniz, J., Gordon, M. Effect of polymer host matrix on multi-stage isomerization kinetics of DASA photochromes. *Journal of Photochemistry and Photobiology A: Chemistry*, **2023**, *444*, 114964.
12. Lemaire, B., Yu, Y., Molinari, N., Wu, H., Goodwin, Z., **Stricker, F.**, Kozinsky, B., Aizenberg, J. Flexible fluid-based encapsulation platform for water-sensitive materials. *Proceedings of the National Academy of Sciences*, **2023**, *120*, e2308804120.
13. Park, M., **Stricker, F.**, Campos, J., Clark, K., Lee, J., Kwon, Y., Valentine, M., Read de Alaniz, J. Design of Surface-Aligned Main-Chain Liquid-Crystal Networks Prepared under Ambient, Light-Free Conditions Using the Diels–Alder Cycloaddition. *ACS Macro Letters*, **2023**, *12*, 33–39.
14. Duan, Y., Zhao, H., Yue, G., Sun, F., **Stricker, F.**, Wang, Z., Mao, L., He, C., Read de Alaniz, J., Zheng, Y., Wang, D. Controlling the Isomerization of Photoresponsive Molecules through a Limiting Tautomerization Strategy. *The Journal of Physical Chemistry B*, **2022**, *126*, 3347–3354.
15. Sroda, M., Lee, J., Kwon, Y., **Stricker, F.**, Park, M., Valentine, M., Read de Alaniz, J. Role of material composition in photothermal actuation of DASA-based polymers. *ACS Applied Polymer Materials*, **2022**, *4*, 141–149.
16. Peterson, J., **Stricker, F.**, Read de Alaniz, J. Improving the kinetics and dark equilibrium of donor–acceptor Stenhouse adduct by triene backbone design. *Chem. Comm.*, **2022**, *58*, 2303–2306.
17. Seshadri, S., Bailey, S., Zhao, L., Fisher, J., Sroda, M., Chiu, M., **Stricker, F.**, Valentine, M., Read de Alaniz, J., Helgeson, M. Influence of Polarity Change and Photophysical Effects on Photosurfactant-Driven Wetting. *Langmuir*, **2021**, *37*, 9939–9951.
18. Bailey, S., **Stricker, F.**, Hopkins, E., Wilson, M., Read de Alaniz, J. Shining Light on Cyclopentadienone–Norbornadiene Diels–Alder Adducts to Enable Photoinduced Click Chemistry with Cyclopentadiene. *ACS Applied Materials and Interfaces*, **2021**, *13*, 35422–35430.
19. Mostafavi, S., Li, W., Clark, K., **Stricker, F.**, Read de Alaniz, J., Bardeen, C. Photoinduced deadhesion of a polymer film using a photochromic donor–acceptor Stenhouse adduct. *Macromolecules*, **2019**, *52*, 6311–6317.
20. Hemmer, J., Page, Z., Clark, K., **Stricker, F.**, Dolinski, N., Hawker, J., Read de Alaniz, J. Controlling dark equilibria and enhancing donor–acceptor Stenhouse adduct photoswitching properties through carbon acid design. *Journal of the American Chemical Society*, **2018**, *140*, 10425–10429.
21. Frisch, H., Fritz, E., **Stricker, F.**, Schmueser, L., Spitzer, D., Weidner, T., Ravoo, B., Besenius, P. Kinetically Controlled Sequential Growth of Surface-Grafted Chiral Supramolecular Copolymers *Angew. Chem. Int. Ed.*, **2016**, *55*, 7242–7246.

## TEACHING & MENTORING EXPERIENCE

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### Guest Lecturer

- Chemistry in Materials Science and Engineering, School of Applied Science and Engineering, Harvard University, Fall 2024

### Teaching Assistant

- Organic Chemistry Lab, Department of Chemistry and Biochemistry, University of California, Santa Barbara, (Winter and Spring 2020). 40 students.
- Introduction to Organic Chemistry, Institute for Organic Chemistry, Johannes Gutenberg-Universität Mainz (2016–18). 20 to 30 students.

### Pedagogical Training

- School of Engineering and Applied Sciences Teaching Practicum, Harvard University, Spring 2024
- Inclusive STEM Teaching project course, Inclusive STEM Teaching Project, Nov 2023

## FELLOWSHIPS & AWARDS

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### Fellowships

Walter Benjamin Fellow, Postdoctoral Fellowship of the German Science Foundation (DFG), 2023–25

Chair Fellowship, for excellence in research and graduate studies, UCSB, Summer 2021 & 2022

ERP Fellowship of the German Academic Scholarship Foundation, for postgraduate studies at US elite universities, 2018–19

Fellowship of the German Academic Scholarship Foundation, 2015–18

### Teaching Awards

Robert H. DeWolfe Graduate Teaching Award, 2019, UCSB

### Academic Recognition

Young Scientist, 74<sup>th</sup> Lindau Nobel Laureate Meeting Chemistry, Jun 2024

Best Poster Award, International Symposium on Stimuli-Responsive Materials, Oct 2024

Organic Platform Talk Award, UC Chemical Symposium, Mar 2021

Phi Lambda Upsilon Society Award (National Honorary Chemical Society), for academic excellence, 2019

## PROFESSIONAL SERVICE

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### Outreach

Judge, ACS PMSE Doolittle Award, ACS Fall Meeting 2024, Denver, 18–22 Aug 2024

oSTEM (Out in STEM) mentor, 2021–22

### Leadership

Presider, Novel Applications of Polymeric Materials, ACS Fall Meeting 2024, Denver, 18–22 Aug 2024

Discussion Leader, GRS Bioinspired Materials, Les Diablerets, 15–16 Jun 2024

Discussion Leader, GRS Artificial Molecular Switches and Motors, Colby-Sawyer College, 17–18 Jun 2023

Organizer, Winterakademie der Studienstiftung, weeklong workshop, 3–10 Mar 2018

Organizer, inaugural study abroad symposium, Chemistry Department, JGU Mainz, 24 Oct 2017