Friedrich Stricker, PhD

fstricker@seas.harvard.edu, +1 805 452 2785,
LinkedIn; Google Scholar

RESEARCH & TEACHING INTERESTS

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. I have authored 21 peer-reviewed publications, including 8 as first author, in high-impact journals.

RESEARCH EXPERIENCE

2026 **Incoming Assistant Professor**, Institute of Science and Technology Austria
(Start date Aug 1st)

2022– **Walter Benjamin Postdoctoral Fellow,** group of Joanna Aizenberg, John A. Paulson School of Engineering & Applied Sciences, Harvard University, Cambridge, MA

EDUCATION

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

Selected Publications (*authors contributed equally)

1. **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.
2. **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.
3. **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.
4. **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. *Chemical Communication*, **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.

SELECTED PRESENTATIONS

Talks

74th Lindau Nobel Laureate Meeting Chemistry, Lindau, 29 Jun–04 Jul 2025
GRS Artificial Molecular Switches and Motors, Colby-Sawyer College, 21–22 Jun 2025
AIChE Fall Meeting, San Diego, 27–31 Oct 2024
Berlin-Brandenburg Academy of Sciences and Humanities & Royal Society bilateral meetings, Berlin, 7–9 October 2024
ACS Fall Meeting, Denver, 18–22 Aug 2024
Chemtalk Seminar, Harvard University, 9 Aug 2024
CCB Spring Symposium, Harvard University, 21 May 2024
International Liquid Crystal Elastomer Conference, Boulder, 08–11 Oct 2023
GRK 2516 Workshop, Mainz, 10–13 Oct 2022
Pacifichem 2021, virtual, 16–21 Dec 2021
MRS Fall Meeting, Boston, 29 Nov–02 Dec 2021
UC Chemical Symposium, virtual, 25–27 Mar 2021

Posters

International Symposium on Stimuli-Responsive Materials, Windsor, 19–21 Oct 2024

TEACHING & MENTORING EXPERIENCE

Guest Lecturer

Responsibilities included preparing and holding lectures

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

Teaching Assistant

Responsibilities included giving laboratory lectures and quizzes, grading all assignments, leading section discussions, preparing weekly practice problems, and preparing videos for the entire organic lab series in a team of four during the pandemic.

- 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

Mentoring

- Mentored four undergraduate students at UCSB and Harvard, resulting in co-authored publications; two are currently in graduate school.
- Trained and mentored four graduate students both at UCSB and Harvard, resulting in multiple co-authored publications.

FELLOWSHIPS & AWARDS

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, 74th 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

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