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Swimming modes & interactions of anisotropic active colloids

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List of publications

Chapter 2: Designing highly efficient interlocking interactions in anisotropic active particles.

S. Riedel, L. A. Hoffmann, L. Giomi and D. J. Kraft
Nature Communications, **15**, 5692 (2024)

Chapter 3: Shape-dependent direction reversal in anisotropic catalytic microswimmers.

S. Riedel, M. Wei and D. J. Kraft
(in review)

Chapter 4: Shape-tuneable equilibrium constants in active particle self-assembly.

S. Riedel, L. A. Hoffmann and D. J. Kraft
(in preparation)

Not part of this thesis:

The Motion of Catalytically Active Colloids Approaching a Surface.

J. Melio, S. Riedel, A. Azadbakht, S. A. Caipa Cure, T. M. J. Evers, M. Babaei, A. Mashaghi, J. de Graaf, D. J. Kraft
Soft Matter **21**, 2541-2547 (2025)

Supramolecular gelation controlled by an iodine clock.

S. Riedel, T. Schweizer, K. Smith-Mannschott, E. R. Dufresne and G. Panzarasa
Soft Matter **17**, 1189-1193 (2021)

Stable and transient self-propagating supramolecular gelation.

S. Riedel and G. Panzarasa
Mol. Syst. Des. Eng. **6**, 883-887 (2021)

About the author

I was born on 10th July 1996 in Paris, France. From 2006 to 2014, I attended the German high school Gymnasium Theresianum in Mainz, Germany.

I then studied Chemistry at the Federal Institute of Technology (ETH Zurich) in Zurich, Switzerland, where I obtained a Bachelor degree in Science between 2014 and 2018, followed by a Master degree in Science from 2018 to 2020. My master's thesis, titled *Time-controlled supramolecular self-assembly and gelation*, was carried out under the supervision of Prof. Dr. Eric Dufresne and Dr. Guido Panzarasa.

From 2021 to 2025, I pursued a PhD in Soft and Active Matter Physics in the group of Daniela Kraft at Leiden University, the Netherlands, which resulted in the present thesis.

Courses

Fall 2021	Communication in Science Leiden University, Leiden
Spring 2022	Scientific Conduct for PhDs Leiden University, Leiden
Spring 2022	Club PhD (formerly Time Management) Leiden University, Leiden
Fall 2022	Use your brain Leiden University, Leiden, The Netherlands Course on speed reading and brainstorming
Spring 2023	Standing up for yourself, while keeping good relations (formerly Effective Communication) Leiden University, Leiden, The Netherlands

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During the final stage of my PhD, I was a member of the PhD platform, where I had the pleasure of engaging in many stimulating discussions with Kirsten and Koen. My Tuesday and Thursday evenings also became much more fun by regular bouldering sessions with Jaimy, Julio, and Leon.

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