

Dr. Erik Poppleton

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Scientific Experience

Heidelberg University, MPI for Polymer Research, MPI for Medical Research & Heidelberg Institute for Theoretical Studies — Heidelberg/Mainz, Germany	2022-Present
Postdoctoral fellowship in computational biology focusing on synthetic cells, RNA sequence/structure, and molecular dynamics simulations of RNA-lipid interactions	
Kano Therapeutics — Boston, Massachusetts	2022
Contract initiating cloud computing pipelines for CRISPR knock-in design	
Arizona State University Biodesign Institute, Center for Molecular Design and Biomimetics — Tempe, Arizona	2017-2022
PhD on design, simulation, and optimization of large-scale DNA and RNA nanostructures	
Tufts University Department of Biomedical Engineering — Medford, Massachusetts	2015-2017
Undergraduate research on biophysics of protein recognition domains in collagen	
Lawrence Berkeley National Laboratory — Berkeley, California	2016
Summer internship on isotopic tracking of organic matter in deep soil horizons	

Education

Arizona State University, Fulton School of Engineering — Tempe, Arizona	2017-2022
PhD in Biological Design, GPA 4.0, Dean's Dissertation Award	
Tufts University, School of Arts and Sciences — Medford, Massachusetts	2013-2017
BS in Biology & Geology, GPA 3.44, Highest thesis honors in biology	

Selected Publications *Underline - First or co-first author | See Google Scholar for full list*

M. P. Tran, T. Chakraborty, **E. Poppleton**, L. Monari, M. Illig, F. Giessler, K. Göpfrich. Genetic encoding and expression of RNA origami cytoskeletons in synthetic cells. (2025) *Nature Nanotechnology* 20:664-671. [10.1038/s41565-025-01879-3](https://doi.org/10.1038/s41565-025-01879-3)

E. Poppleton, N. Urbanek, T. Chakraborty, A. Griffo, L. Monari, K. Göpfrich. RNA origami: design, simulation and application. (2023) *RNA Biology* 20(1):510-524. [10.1080/15476286.2023.2237719](https://doi.org/10.1080/15476286.2023.2237719)

J. Bohlin, M. Matthies, **E. Poppleton**, J. Procyk, A. Mallya, H. Yan, P. Šulc. OxView: a system for online design, analysis, and interactive simulation of DNA, RNA, and hybrid protein-nucleic acid nanostructures. (2022) *Nature Protocols*, 17:1762-1788. [10.1038/s41596-022-00688-5](https://doi.org/10.1038/s41596-022-00688-5)

Technical Skills

Programming languages: Python (complex data pipelines), Java/TypeScript (interactive visualization), Bash
Project ownership: Maintain two open-source repositories, experienced in agentic AI workflows for testing and modernization of complex codebases

Scientific computing: MD simulation in oxDNA & GROMACS, DNA/RNA structure design, ViennaRNA, PyMol

Wet lab skills: Rusty, but experienced in DNA/RNA work, HPLC, MS, E. coli expression, AFM imaging, Soils

Full academic-style CV available upon request