

ANASTASIA S. LYULINA

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EDUCATION

Stanford University , <i>Stanford, CA, United States</i> PhD, Biology	2020 — present (<i>expected 2026</i>)
Saint Petersburg Polytechnic University , <i>Saint Petersburg, Russia</i> BSc, Physics	2013 — 2017
Technical University of Munich , <i>Munich, Germany</i>	2016

RESEARCH OVERVIEW

I use mathematical modeling and data analysis to understand how microscopic growth processes and genome dynamics give rise to population-level variation. My dissertation research spans genetic diversity under time-varying demography and selection, correlations between alleles at linked loci, and the kinetics of early clonal growth in cancer.

PROFESSIONAL APPOINTMENTS

Stanford University , <i>Stanford, CA, United States</i> Graduate Research Assistant, Departments of Biology and Applied Physics ADVISORS: Benjamin Good, Dmitri Petrov	2020 — present
Institute of Science and Technology , <i>Maria Gugging, Austria</i> Research Assistant, Evolutionary Genomics Group ADVISOR: Fyodor Kondrashov	2017 — 2020
Harvard University , <i>Cambridge, MA, United States</i> Visiting Postgraduate Research Fellow, Systems Biology Department ADVISOR: Johan Paulsson	2019
University of Calgary , <i>Calgary, AB, Canada</i> Visiting Undergraduate Student, Centre for Molecular Simulation ADVISOR: Peter Tieleman	2017
Russian Academy of Sciences , <i>Saint Petersburg, Russia</i> Undergraduate Student, Institute of Macromolecular Compounds ADVISOR: Andrey Gurtovenko	2013, 2016 — 2017

FELLOWSHIPS AND AWARDS

Predoctoral Fellowship, Stanford Center for Computational, Evolutionary, and Human Genomics	2025 — 2026
Excellence in Teaching Award, Department of Biology, Stanford University	2024
Sarah Ketterer Graduate Fellowship, Stanford University	2021 — 2024
Gruber Science Fellowship, Yale University (<i>declined</i>)	2020
Summer Research Fellowship, Zimin Foundation	2017
Academic Stipend, Saint Petersburg Polytechnic University	2015 — 2017

RESEARCH FUNDING

Mikitani Cancer Research Grant, Stanford Cancer Institute (*with Saswati Karmakar, \$40,000*) 2024

PUBLICATIONS

* *denotes equal contributions*

3. Karageorgi M, **Lyulina AS**, Bitter MC, Lappo E, Greenblum S, Mouza ZK, Tran CT, Huynh AV, Oken H, Schmidt P*, Petrov DA*. Beneficial reversal of dominance maintains a resistance polymorphism under fluctuating insecticide selection. *Nature Ecology and Evolution* 9, 2145–2160 (2025). *Featured in a press release.*
2. **Lyulina AS***, Liu Z*, Good BH. Linkage equilibrium between rare mutations. *Genetics* 228, iyae145 (2024). *Featured on the cover.*
1. Gurtovenko AA, **Lyulina AS**. Electroporation of asymmetric phospholipid membranes. *Journal of Physical Chemistry B* 118, 9909–9918 (2014). *Featured on the cover.*

MANUSCRIPTS IN REVISION

Konczal M, **Lyulina AS**, Zapata L, Camara F, Vlasova A, Saona R, Bello C, Fraïsse C, Gut M, Derelle R, Zheng C, Lin Y, Tutukina MN, Plyuscheva M, Fontseré C, Tomkovich PS, Iakushev NI, Shepelev IA, Clements J, Jarrett N, Clark N, Arkhipov VY, Zöckler C, Digby R, Lappo EG, Dong L, Li S, Hu J, Liu Y, Ossowski S, Marques-Bonet T, Guigó-Serra R, Syroechkovskiy EE, Kondrashov FA. Population growth facilitated the retention of deleterious variance in the critically endangered spoon-billed sandpiper.

MANUSCRIPTS IN PREPARATION

Lyulina AS, Good BH. Genetic diversity under nonequilibrium demography.

Lyulina AS, Severson AL, Juan J, Sebastian L, Tran V, Nie W, Lai I, Wall GD, Winslow MM, Winters IP, Good BH, Petrov DA, Rosen MJ. Early dynamics of cancer growth inferred from tracking tens of millions of clonal tumors *in vivo*.

Karmakar S*, **Lyulina AS***, Xiong X*, Tang YJ, Lopez S, Hughes NW, Attardi L, Petrov DA, Winslow MM. Integrated *in vivo* dissection of metastatic phenotypes and molecular programs in pancreatic ductal adenocarcinoma.

SELECTED TALKS AND SEMINARS

Santa Fe Institute, <i>Santa Fe, NM, United States (expected)</i>	2025
Evolution Meeting, <i>Athens, GA, United States</i>	2025
National Institute for Theory and Mathematics in Biology, <i>Chicago, IL, United States</i>	2025
Stochastic Physics in Biology Gordon Research Conference, <i>Ventura, CA, United States</i>	2025
Society for Molecular Biology and Evolution Annual Meeting, <i>Puerto Vallarta, Mexico</i>	2024
American Physical Society March Meeting, <i>Las Vegas, NV, United States</i>	2023
Bay Area Population Genomics Conference, <i>Davis, CA, United States</i>	2023
Harvard Quantitative Biology Symposium, <i>Cambridge, MA, United States</i>	2019
Graduate University for Advanced Studies, <i>Hayama, Japan</i>	2018

PROFESSIONAL TRAINING

Cold Spring Harbor Laboratory Yeast Genetics and Genomics Course <i>Cold Spring Harbor, NY, United States</i>	2022
Okinawa Institute of Science and Technology Computational Neuroscience Course <i>Onna, Japan</i>	2018

TEACHING AND MENTORSHIP

AT STANFORD UNIVERSITY

Biology 192/387: Seminar on Statistical Methods in Ecology and Evolution, <i>guest lecturer</i>	2025
Biology 85: Evolution, <i>teaching assistant</i>	2024
Biology 114: Building up Developing Scientists, <i>guest lecturer</i>	2023
Biology 113/244: Fundamentals of Molecular Evolution, <i>teaching assistant</i>	2022
School of Molecular and Theoretical Biology, <i>course instructor, research mentor</i>	2014 — 2018
Saint Petersburg Physics Olympiad Summer Training Program, <i>course instructor</i>	2013 — 2015

SERVICE AND OUTREACH

Stanford Biology PhD Preview Program, <i>volunteer</i>	2020 — <i>present</i>
Stanford Biology PhD Program Admissions Committee, <i>student representative</i>	2023 — 2024
Stanford Biology Department Mentorship Committee, <i>committee member</i>	2021 — 2022
School of Molecular and Theoretical Biology Alumni Association, <i>board member</i>	2015 — 2017

PEER REVIEW: *Journal of Theoretical Biology*, *PLOS Computational Biology*, *PLOS Genetics*, *Genetics* (with advisor), *PNAS* (with advisor).

TECHNICAL SKILLS

Theoretical modeling of evolutionary and stochastic dynamics, numerical methods, statistics, genomic data analysis, basic laboratory techniques.

REFEREES

Available upon request.