Ata Kalirad, PhD

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Research

My current research revolves around understanding the causes of **genetic incompatibilities** using a computational model of RNA folding, theoretical exploration of **the role of genetic robustness in evolution** (both of which in collaboration with Ricardo B. R. Azevedo at University of Houston), and studying **the importance of phenotypic plasticity in evolution** using different species of *Pristionchus* - a genus of nematodes - at Ralf Sommer's lab in Tübingen.

Current Positions

March 2020 - Present	Postdoctoral Fellow, Department for Integrative Evolutionary Biology, Max-Planck-Institut für Entwicklungsbiologie, Tübingen, Germany
2018 - Present	Member of the Genetics & Biotechnology Committee at the Academy of Persian Language and Literature, Tehran, Iran

Past Positions

2019 - Feb 2020	Postdoctoral Fellow, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran
2017 - 2020	Member of the Scientific Committee for the Iranian Biology Olympiad (irBO) at the National Centre for Development of Exceptional Talents, Tehran, Iran
2017 - 2018	Research Fellow, Institute for Research in Fundamental Sciences (IPM)
2017 - 2018	Member of the Scientific Committee for the 29th International Biology Olympiad (IBO), Tehran, Iran

Education

2011 - 2016	PhD, Department of Biology and Biochemistry, University of Houston, TX, USA
2008 - 2011	BSc, Department of Biology, University of Tehran, Iran

Publications

Peer-review Journals

2020	H. Safdari, **A. Kalirad**, C. Picioreanu, R. Tusserkani, B. Goliaei, M. Sadeghi, *Noise-driven cell differentiation and the emergence of spatiotemporal patterns*, PLOS ONE, doi: https://doi.org/10.1371/journal.pone.0232060 (Co-first author)

S. Vafadar, K. Kavousi, H. Safdari, **A. Kalirad**, M. Sadeghi, *From indication to decision: A hierarchical approach to model the chemotactic behavior of Escherichia coli*, Journal of Theoretical Biology, doi: https://doi.org/10.1016/j.jtbi.2020.110253

2016 **A. Kalirad** and R. B. R. Azevedo, *Spiralling complexity: a test of the snowball effect in a computational model of RNA folding*, Genetics, doi: https://doi.org/ 10.1101/076232. 2017 (chosen by the editors as one of the May 2017 Highlights)

2011 H. Asgharian, E. Elahi, **A. Kalirad**, and H. Hosseinzadeh Saha , *Sequence data on four genes suggest nominal Gerres lamentosus specimens from Nayband National Park in the Persian Gulf represent two distinct species*, Iranian Journal Of Animal Biosystematics 6(2): 1-11.

Working Papers

2021 James Lightfoot, Mohannad Dardiry, **Ata Kalirad**, Stefano Giaimo, Gabi Eberhard, Hanh Witte, Martin Wilecki, Christian Roedelsperger, Arne Traulsen, and Ralf Sommer, *Polyphenism and reproductive mode shape cannibalism behaviours in nematodes.* (*in review*)

2020 H. Safdari, M. Sadeghi, and **A. Kalirad,** *Making ATP fast and slow: do yeasts play a mixed strategy to metabolise glucose?*, bioRxiv, doi: https://doi.org/10.1101/540757 (*in review*)

S. Vafadar, M. Shahdoust, **A. Kalirad**, P. Zakeri, and Mehdi Sadeghi, *Competitive exclusion during co-infection as a strategy to prevent the spread of a virus: a computational perspective* (*in review*)

Books

2020 *How to Tame a Fox (and Build a Dog)*, Lee Dugatkin & Lyudmila Trut, Translated into Farsi by Ata Kalirad, Fatemi Publication, Tehran (authorized translation - in press)

Presentations

Invited Talks

2019 *Darwin's revolutionary ideas*, Origin of species: 160 years later, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran

2018 *The fitness landscapes and the origin of species*, 2nd Frontiers in Biological Sciences Symposium, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran

2017 *On the origin of species*, 1st National Symposium on Evolution, University of Tehran, Tehran, Iran

Making ATP fast and slow, University of Shiraz, Shiraz, Iran, May 2019 *On the origin of species*, 1st National Symposium on Evolution, University of Tehran, Tehran, Iran

Conferences, Workshops, and Meetings

2016 — *The melting snowball*, Evolution Meeting 2016, Austin, TX, USA

2014 — *On the origin of species by means of Dobzhansky-Muller incompatibilities*, Evolution Meeting 2014, Raleigh, N.C., USA.

A test of the snowball theory in RNA, 6th Annual Biology and Biochemistry Graduate Student Symposium, University of Houston, 2014 (*Recipient of the best talk award*)

Popular science talks

2018 — *A primer on evolutionary genetics*, Sharif University of Technology, Tehran, Iran (*three talks intended for undergraduate and graduate students with no background in biology*)

2017 — *The role of scientific thinking in combating pseudoscience and anti-science*, Seminar on the Obstacles to Teaching Biology, The Academy of Sciences of the Islamic Republic of Iran, Tehran, Iran

What evolution is not, 3rd Citalk Meeting (organized by National Research Institute for Science Policy), Tehran, Iran

Teaching

Courses

2019 — *Species and speciation*, Graduate-level course, University of Tehran, School of Biology (Department of Zoological Sciences), Spring 2019

General Biology 2, Undergraduate-level course, University of Tehran, School of Biology (Department of Biotechnology), Spring 2019

2017 - 2020 — Teaching various courses on evolution at the National Center for Development of Exceptional Talents, Tehran, Iran

Skills

Competent with scientific programming in *Python*. Familiar with *C*, *Mathmatica*, *R*, basic graphic design, and basic molecular/microbiological techniques.