

## Ella Sieradzki

### *Education*

Post doc	<b>University of California, Davis</b> Plant Pathology <b>Supervisor: Prof. Joanne B. Emerson</b>  Project: “Phages in extreme environments”	Current
Post doc	<b>University of California, Berkeley</b> Environmental Science, Policy and Management <b>Supervisors: Prof. Mary K. Firestone, Prof. Jillian Banfield</b>  Projects: 1. "Quantitative stable isotope probing sensitivity – measurement error and resolution" 2. "Expression of nitrogen cycling genes in a growing root time-series" 3. "Viral and microbial dynamics in the rhizosphere following a wet-up event"	2018-2022
Ph.D	<b>University of Southern California</b> Marine and Environmental Biology <b>Advisor: Prof. Jed A. Fuhrman</b>  Thesis title: "The Microbial Buffet: Community-Wide Trophic Functions Elucidated by Multi-Omics Data"	2012-2018
M.Sc	<b>Tel Aviv University</b> Ecology Thesis title: "A new stress-related sponge disease affecting associated bacterial community and natural product levels" <b>Advisor: Prof. Micha Ilan</b>	2007-2009
B.Sc	<b>Tel Aviv University</b> Biology	2004-2007

### *List of publications*

- 1) **Sieradzki, E.T.**, Morando, M., Fuhrman, J.A. (2021)  
 Metagenomics and stable isotope probing offer insights into metabolism of polycyclic aromatic hydrocarbons degraders in chronically polluted seawater. **mSystems** (impact factor 6.3), DOI: <https://doi.org/10.1128/mSystems.00245-21>

- 2) Lee, S., **Sieradzki, E.T.**, Nicolas, A.M., Walker, R.L., Firestone, M.K., Hazard, C. and Nicol, G.W. (2021). Methane-derived carbon flow through host-virus trophic networks in soil. **PNAS** (impact factor 11.2), DOI: 10.1073/pnas.2105124118.
- 3) Hungate, B., J. Marks, M. Power, E. Schwartz, K.J. van Groenigen, S. Blazewicz, Chuckran P., Dijkstra P., B. Finley, M.K. Firestone, M. Foley, A. Greenlon, M. Hayer, K. Hofmockel, B.J. Koch, M. Mack, R. Mau, S. Miller, E. Morrissey, J. Propster, A. Purcell, **E.T. Sieradzki**, E.P. Starr, B. Stone, C. Terrer and Pett-Ridge, J. (2021). The Functional Significance of Bacterial Predators. **mBio** DOI: 10.1128/mBio.00466-21 (impact factor 6.8).
- 4) Tully B.J. \*, Buongiorno J., Cohen A.B., Cram J.A., Garber A.I., Hu S.K., Krinos A.I., Leftwich P.T., Marshall A.J., **Sieradzki E.T.**, Speth D.R., Suter E.A., Trivedi C.B, Valentin-Alvarado L.E. and Weissman J.L. The Bioinformatics Virtual Coordination Network: an open-source and interactive learning environment. **Frontiers in Education** (impact factor 1.85). DOI: 10.3389/educ.2021.711618
- 5) **Sieradzki, E.T.**, Koch, B.J., Greenlon, A., Sachdeva, R., Malmstrom, R.R., Mau, R.L., Blazewicz, S.J., Firestone, M.K., Hofmockel, K., Schwartz, E., Hungate, B.A. and Pett-Ridge, J. (2020). Measurement error and resolution in quantitative stable isotope probing: implications for experimental design. **mSystems** (impact factor 6.3). DOI: 10.1128/mSystems.00151-20.
- 6) **Sieradzki, E.T.**, Ignacio-Espinoza, J.C., Needham, D.M., Fichot, E.B., Fuhrman, J.A. (2019). Dynamic marine viral infections and major contribution to photosynthetic processes shown by spatiotemporal picoplankton metatranscriptomes. **Nature Communications** (impact factor 14.9). DOI: 10.1038/s41467-019-09106-z.
- 7) **Sieradzki, E.T.**, Fuhrman, J.A., Rivero-Calle, S., Gómez-Consarnau, L. (2018). Proteorhodopsins dominate the expression of phototrophic mechanisms in seasonal and dynamic marine picoplankton communities. **PeerJ**. DOI: 10.7717/peerj.5798.
- 8) Yeh, Y.C., Needham, D.M., **Sieradzki, E.T.**, Fuhrman, J.A. (2018) taxon disappearance from microbiome analysis reinforces the value of mock communities as a standard in every sequencing run. **mSystems**. DOI: 10.1128/mSystems.00023-18.
- 9) Novak, L., Lopez-Legentil, S., **Sieradzki, E.T.**, Shenkar, N. (2017) Rapid establishment of the non-indigenous ascidian *Styela plicata* and its associated bacteria in marinas and fishing harbors along the Mediterranean coast of Israel. **Mediterranean Marine Science**. DOI: 10.12681/mms.2135.

### *Preprints*

- 10) **Sieradzki, E.T.**, Nuccio, E.E., Pett-Ridge, J. and Firestone, M.K. (*In review*). Transcription of protease and chitinase genes provides a window onto macromolecular organic nitrogen decomposition in soil. bioRxiv DOI: 2020.12.14.422732
- 11) Greenlon, A., **Sieradzki, E.T.**, ..., Jillian F. Banfield (In prep). Quantitative stable-isotope probing (qSIP)-informed metagenomics links microbial physiology and activity to soil moisture in Mediterranean grassland ecosystems

- 12) Chukran, P., Flagg, C., Propster, J., Rutherford, W., **Sieradzki, E.T.**, Blazewicz, S.J., Hungate, B.A., Pett-Ridge, J., Schwartz, E and Dijkstra, P (*In revision, ISMEJ*). Edaphic controls on genome size and GC content of bacteria in soil microbial communities.
- 13) **Sieradzki, E.T.**, Nuccio, E. E., Pett-Ridge, J., Firestone, M. K. (*In prep*). Nitrogen transformations in rhizosphere and detritosphere soil from time resolved microbial metatranscriptomes.
- 14) **Sieradzki, E.T.**, Greenlon, A., Firestone, M.K., Pett-Ridge, J., Blazewicz, S.J., Banfield, J.F. (*In prep*). Microbial succession following wet-up is underpinned by shifts in C and N acquisition pathways and precipitation legacy effect.
- 15) Nicolas, A. \*, **Sieradzki, E.T.\***, Estera-Molina K., Pett-Ridge, J., Firestone, M.K., Banfield, J.F., Blazewicz, S.J. (*In prep*). Functional genomics of replicating microbes and viruses following rewetting of a Mediterranean grassland soil. **\*co-first authors**

### *Peer reviewer*

Review editor: Frontiers in Microbiology  
 USA national science foundation (NSF)  
 Science  
 ISME Journal  
 Microbiome journal  
 Nature Communications Biology journal

### *Awards and fellowships*

- 1) University of Southern California **Provost fellowship**, 2012-2017
- 2) Norma and Jerol Sonosky Environmental Sustainability Graduate Fellowship, Wrigley Institute for Environmental Studies, 2014 and 2015

### *Select Invited seminars*

- 1) Succession of microbes and viruses throughout a soil rewetting time-series. **Microbiome Centers Consortium Seminar, 2022.**  
[https://osu.zoom.us/rec/play/f8kYaFcgOLTHMoIEq03jNj69z2Qxu3MAHmS031msAoqFghLaB-j4fi4vLuS8QfW50grZRyYks09\\_dkp0.RcjxfDpnBhUnkpsv?continueMode=true](https://osu.zoom.us/rec/play/f8kYaFcgOLTHMoIEq03jNj69z2Qxu3MAHmS031msAoqFghLaB-j4fi4vLuS8QfW50grZRyYks09_dkp0.RcjxfDpnBhUnkpsv?continueMode=true)
- 2) A needle in a haystack: How to study active organisms in complex environments with stable isotopes and metagenomics. **Illumina webinar series, 2021.**  
<https://www.illumina.com/events/webinar/2021/active-organisms-metagenomics.html>
- 3) Nitrogen breakdown and assimilation pathways in rhizosphere and detritosphere soil from time resolved microbial metatranscriptomes. **ISME MicroSeminar series, 2020.**  
[https://www.youtube.com/watch?v=3LFQYp\\_WRno](https://www.youtube.com/watch?v=3LFQYp_WRno)
- 4) Metatranscriptomes: system-level dynamics, differential expression and viruses. **JBIMS Data Science Workshop: Microbiome, 2020.**

- 5) Insights into polycyclic aromatic hydrocarbon biodegradation in a chronically polluted site. **Isotope geochemistry seminar series, UC Berkeley, CA. 2019**
- 6) When bacteria get the flu. **Women in Science and Engineering** STEM bytes seminar series, University of Southern California. 2017

### **Teaching**

#### **Bioinformatics Virtual Coordination Network (<https://biovcnet.github.io>)**

Instructor: **R programming**, Metagenomics, Metatranscriptomics

Preparing lesson plans, recording video tutorials, leading live online classes, responding to student questions online, mentoring project-oriented studies

**University of California Berkeley**, Biological sciences

Guest lecturer: Microbial Ecology ESPM 112 (undergraduate level)

Guest lecturer: Microbial Ecology PMB 220F (graduate level)

**University of Southern California**, Biological sciences

Teaching assistant: short presentations, writing quizzes and exams, grading, office hours

**Introduction to microbiology** (upper division)

**General Biology: Organismal Biology and Evolution**

**Tel Aviv University**, Department of Zoology

Teaching assistant: short presentations, writing quizzes and exams, grading, dissections

**Invertebrate anatomy** (upper division)

**Teaching interests:** Bioinformatics, Microbial Ecology, Biological Oceanography

### **Presentations in scientific meetings**

- 1) **Sieradzki, E.T.\***, Nuccio, E., Starr, E.P., Banfield, J.F., Firestone, M.K. and Pett-Ridge, J. (2020). Microbial and Viral Niche-Differentiation in Time-Resolved Metatranscriptomes from Rhizosphere and Detritosphere Soil. **DOE Genomic Sciences PI meeting**, Washington DC. Poster
- 2) **Sieradzki, E.T.\***, Ignacio-Espinoza, J.C., Needham, D.M., Fichot, E.B., Fuhrman, J.A. (2019). Dynamic marine viral infections and major contribution to photosynthetic processes shown by spatiotemporal picoplankton metatranscriptomes. **ASM Microbe**, San Francisco, CA. Talk
- 3) **Sieradzki, E.T.\***, Sachdeva, R., Koch, B., Mau, R., Hayer, M., Dijkstra, P., Schwartz, E., Hungate, B., Hofmockel, K., Bell, S., Fuhrman, J., Morrissey, E., Blazewicz, S., Nuccio, E., Malmstrom, R., Banfield, J., Firestone, M., Pett-Ridge, J. (2018) Stable isotope probing - a fraction saved is a fraction earned. **ISME17**, Leipzig, Germany. Poster
- 4) **Sieradzki, E.T.\***, Fuhrman, J. (2016) Biodegradation of polycyclic aromatic hydrocarbons in naturally occurring marine microbial communities. **ISME16**, Montreal, Canada. *Poster*

- 5) **Sieradzki, E.T.\***, Fuhrman, J. (2016) High resolution detection of taxa capable of PAHs degradation in a marine coastal system using SIP-tag and metagenomics. **ISOEcol**, Tokyo, Japan. Poster
- 6) **Sieradzki, E.T.\***, Sachdeva, R., Fichot, E., Parada, A., Wroobel, I., Fuhrman, J. (2015) Human impact on marine microbial community composition. **ASLO**, Granada, Spain. Poster

\* Presenting author

### *University and community service*

**Session Convener** American Geophysical Union, **Geovirology session**. San Francisco, CA, December 2019, 2020.

**ScienceAbroad regional coordinator**; Berkeley

Organizing community activities for local Israeli scientists

**Women in Science planning committee member**; University of California, Berkeley

Inviting speakers, setting up events, applying for funding

**Invited seminar committee**; University of Southern California

Organizing panels, inviting speakers, applying for funding, handling reimbursements

### *References*

<b>Mary Firestone</b> University of California Berkeley	<a href="mailto:mkfstone@berkeley.edu">mkfstone@berkeley.edu</a> 510-502-2471	Post doc supervisor
<b>Jennifer Pett-Ridge</b> Lawrence Livermore National Laboratory	<a href="mailto:Pettridge2@llnl.gov">Pettridge2@llnl.gov</a> 925-424-2882	Collaborator
<b>Jed Fuhrman</b> University of Southern California	<a href="mailto:fuhrman@usc.edu">fuhrman@usc.edu</a> 213-740-5757	PhD advisor

### *Additional references*

<b>Steven Blazewicz</b> Lawrence Livermore National Laboratory	<a href="mailto:Blazewicz1@llnl.gov">Blazewicz1@llnl.gov</a> 925-423-1506	Collaborator
<b>Graeme Nicol</b> Ecole Centrale de Lyon	<a href="mailto:graeme.nicol@ec-lyon.fr">graeme.nicol@ec-lyon.fr</a>	Collaborator
<b>Bruce Hungate</b> Northern Arizona University	<a href="mailto:Bruce.Hungate@nau.edu">Bruce.Hungate@nau.edu</a>	Collaborator
<b>Douglas Capone</b> University of Southern California	<a href="mailto:capone@usc.edu">capone@usc.edu</a> 213-740-2772	PhD committee member

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213-740-5791

PhD committee  
member

### *Languages*

Hebrew – native speaker

English – fluent

Spanish – fair level

French – fair level