

CURRICULUM VITAE

Bjørn Østman, Ph.D.

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EMPLOYMENT HISTORY

- 2017-present Postdoctoral Scholar, Ecology and Evolutionary Biology, UC Los Angeles
2014-2016 Postdoctoral Scholar, Ecology, Evolution, and Marine Biology, UC Santa Barbara
2012-2014 Research Associate, Microbiology and Molecular Genetics, Michigan State University
2010-2012 Research Associate, BEACON, Michigan State University
2006 Fellow, Institute for Pure and Applied Mathematics, UC Los Angeles
1999-2002 Senior Web Developer, Web Marketing Associates, New York, NY

EDUCATION

- 2010 Ph.D. Computational and Systems Biology, Keck Graduate Institute, Claremont, CA
2005 M.A. Ecology, Evolution, and Marine Biology, UC Santa Barbara
1999 M.S. Astronomy, University of Copenhagen
1995 B.S. Physics, University of Copenhagen

PUBLICATIONS

Bendixsen DP, **Østman B** & Hayden EJ (2017) *Negative epistasis in experimental RNA fitness landscapes*, J Mol Evol <https://doi.org/10.1007/s00239-017-9817-5>

Patra B, Kon Y, Sevold A, Frumkin J, Vallabhajosyula R, Hintze A, **Østman B**, Schossau J, Bhan A, Marzolf B, Tamashiro J, Kaur J, Baliga N, Grayhack E, Galas D, Raval A, Adami C, Phizicky E, Ray A (2017) *A genome wide dosage suppressor network reveals genomic robustness*, Nucleic Acids Research **45**(1) 255-270.

Vital M, Chai B, **Østman B**, Cole J, Konstantinidis K, Tiedje J (2015) *Gene expression analysis of E. coli strains provides new insights into the role of gene regulation in diversification*, The International Society for Microbial Ecology Journal, **9**, 1130-1140.

Østman B, Lin R, Adami C (2014) *Trade-offs drive resource specialization and the gradual establishment of ecotypes*, BMC Evolutionary Biology **14**:113.

Østman B, Hintze A, Adami C (2012) *Impact of epistasis and pleiotropy on evolutionary adaptation*, Proc R. Soc. B, **279**, 12, 1727, 247-256.

Østman B, Hintze A, Adami C (2010) *Critical properties of complex fitness landscapes*, Proceedings of the Twelfth International Conference on the Synthesis and Simulation of Living Systems, 126-132. MIT Press.

Oakley T, **Østman B**, and Wilson A (2006) *Repression and loss of gene expression outpaces activation and gain in recently duplicated fly genes*, PNAS, **103**, 11637.

MANUSCRIPTS IN PREPERATION

Østman B, Teal T, Gomez-Alvarez V, Smith, B, Venkataraman A, Williams B, Schmidt T, *Evolutionary*

Metagenomics Reveals Selection in Terrestrial Microbial Communities, Environmental Microbiol., in review.

Østman B, Hintze, A, Adami, C. *Some mutation-supply rates are more equal than others*, in prep.

Østman B, Martins A, Adami, C. *Evolutionary dynamics in holey fitness landscapes*, in prep.

Gupta A, Zhou T, Finn L, **Østman B**, Wexler M, Zheng Y-H, Adami, C. *Fitness landscape of HIV-1 protease*, in prep.

BOOK CHAPTERS

Proulx, S, **Østman B** (2016) *Introduction to Natural Selection*, in “Encyclopedia of Evolutionary Biology” (R. M. Kliman, ed.), vol 3, pp. 100-103. Oxford: Academic Press.

Østman B, Adami C (2013) *Predicting evolution in high-dimensional fitness landscapes*, in "Recent Advances in the Theory and Application of Fitness Landscapes" (A. Engelbrecht and H. Richter, eds.). Springer Series in Emergence, Complexity, and Computation.

Østman B (2013) *Effects of epistasis and pleiotropy on fitness landscapes*, in “Evolutionary Biology: Exobiology and Evolutionary Mechanisms” (P. Pontarotti, ed.). Evolutionary Biology: 16th Meeting 2012, Springer-Verlag.

AWARDS, FELLOWSHIPS, & GRANTS

2015 Offensive Researcher of the Year, Proulx Lab, UCSB

2014 Legal Permanent Residency granted by the USCIS based on I-140 Exceptional Ability

2014 BEACON travel award to attend ALife 2014, New York, NY (\$1,000)

2014 EEBB travel award to attend Evolution 2014, Raleigh, NC (\$400)

2014 BEACON travel award to attend Evolution 2014, Raleigh, NC (\$500)

2014 BEACON Modeling the Fitness Landscape of HIV-1 Protease (\$70,719)

2012 BEACON travel award to attend 16th Evolutionary Biology Meeting, Marseille (\$1,000)

2011 BEACON Evolutionary Metagenomics (\$116,037)

2009 Phi Beta Kappa International Scholarship (\$1,000)

2009 European Science Foundation travel grant to attend ESF-COST Conference, Hungary

2006 Fellowship Award, Institute for Pure and Applied Mathematics, UCLA (3 months)

2004 Fiona Goodchild Graduate Mentoring Award (\$1,000)

TEACHING

Instructor: Ecology, Evolution, and Marine Biology dept., *Molecular Evolution*, UCSB (2016).

Instructor: Ecology, Evolution, and Marine Biology dept., *Macroevolution*, UCSB (2015).

An Introduction to Evidence-Based Undergraduate STEM teaching, Coursera (2014), Statement of Accomplishment with Distinction.

Guest lecturer: *Multidisciplinary approaches to the study of evolution*, BEACON, MSU (2014).

Instructor: *Evolutionary Dynamics and Modeling*, MSU Microbiology and Molecular Genetics seminar course (2011).

Guest lecturer: *dN/dS: Identifying Selective Pressure in DNA Sequences*, Microbial Metagenomics, MSU (2011).

Guest lecturer: *Elements of evolution*, Claremont Graduate University, CA (2008).

Teaching Assistant: *Computational and Mathematical Methods for the Applied Life Sciences I*, KGI (2008), *Population Genetics*, UCSB (2005), *Principles of Evolution*, UCSB (2005), *Macroevolution*, UCSB (2004), *Introductory Biology Laboratory III*, UCSB (2003, 2004).

Certification in College Teaching in partial fulfillment of MSU Graduate Certification in College Teaching Program, Michigan State University (May, 2014).

SERVICE AND OUTREACH

Journal review: *Evolution*, *PLoS Computational Biology*, *Journal of Theoretical Biology*, *Biology Direct*, *PLoS ONE*, *Multidisciplinary Journal of Microbial Ecology*, *Transactions on Evolutionary Computation*, *Frontiers in Evolutionary and Population Genetics*, *The American Naturalist*, *Acta Bioteoretica*, *Scientific Reports*.

MSU BEACON Darwin Day volunteer (2012), BEACON High School Summer Residential Program volunteer (2012, 2013), BEACON Evolution in Action presentation to K-5th graders during an Elementary Science Night (2012, 2013).

MENTORING

Brian Swartz, UCSB undergraduate research (2004)

Asa Wilson, UCSB undergraduate research (2005)

Randall Lin, Research Experiences for Undergraduates, KGI (2008-2009)

Perry Osgood, Research Experiences for Undergraduates, KGI (2010)

Allen Fang, UCSB (2015-2016)

Andrew Myers, UCSB (2015-2016)

PROFESSIONAL AFFILIATIONS

Society for Molecular Biology and Evolution

Society for the Study of Evolution

International Society of Artificial Life

European Society for Evolutionary Biology

INVITED TALKS

2016 *Tradeoffs driving resource specialization in sympatric asexuals*, Instituto de Ecología, Universidad Nacional Autónoma de México.

2016 *Fitness landscapes, epistasis, and predicting evolution*, Facultad de Ciencias, Universidad Nacional Autónoma de México.

2016 *Evolutionary dynamics in holey fitness landscapes*, Centro de Investigación en Biodiversidad y Conservación, Universidad Autónoma del Estado de Morelos.

2015 *Holey fitness landscapes and asexual speciation*, Universidade Estadual de Campinas, Brazil.

2014 *Evolutionary dynamics of very large populations*, EEMB, UC Santa Barbara, CA

2013 *Fitness Landscapes, epistasis, and predicting evolution*, The University of Toledo, OH

- 2013 *The fitness landscape: How evolution shapes population dynamics*, Center for Inquiry, Grand Rapids, MI
- 2012 *Impact of epistasis and pleiotropy on adaptation*, 16th Evolutionary Biology Meeting, Marseille, France
- 2011 *Evolutionary metagenomics, adaptation, and blogging*, EEBB Graduate Student Colloquium, MSU
- 2010 *Impact of epistasis and pleiotropy on evolutionary adaptation*, Sixth Early Career Scientist Symposium 2010: Experimental Evolution, University of Michigan

PRESENTATIONS

- 2017 *Fitness Landscapes and Evolutionary Forecasting*, 2nd annual QCBio Symposium, UCLA.
- 2014 *Is it time to abandon the holey fitness landscape metaphor?* Evolution 2014, Raleigh, NC.
- 2013 *Resource specialization in a model of sympatric asexuals: the importance of tradeoffs*, Evolution 2013, Snowbird, UT.
- 2013 *Simulations of very large populations: computational and empirical fitness landscapes*, BEACON Congress
- 2012 *Evolutionary metagenomics reveal selection in complex microbial communities*, 1st Joint Congress on Evolutionary Biology, Ottawa, Canada
- 2012 *An evolutionary model of complex microbial communities*, BEACON, MSU
- 2011 *Epistatic modules: Does size matter?* European Society of Evolution Biology, Tübingen, Germany
- 2011 *Applying evolutionary metagenomics to greenhouse gas-emitting microbial communities*, Evolution 2011, Norman, OK
- 2011 *Evolutionary metagenomics: Response of soil bacteria to agriculture*, Sloan/BEACON meeting, MSU
- 2010 *Critical properties of complex fitness landscapes*, ALife XII, Odense, Denmark
- 2009 *Architecture of complex fitness landscapes*, KGI Research Retreat, Claremont, CA
- 2009 *Impact of epistasis on evolutionary adaptation*, ESF-COST Conference, Hungary
- 2009 *Echoes of a simple past in complex regulatory landscapes*, CSHL 74th symposium, NY (poster)
- 2008 *Resource competition drives sympatric speciation*, KGI Research Retreat, Claremont, CA
- 2008 *Fixation of deleterious mutations via epistasis is important in adaptive sweeps*, Western Evolutionary Biology Meeting, UC Irvine, CA
- 2007 *Why deleterious mutations?* KGI Research Retreat, Claremont, CA
- 2006 *Gene expression evolution: genes lose expression more often than they gain it in maggot evolution*, Computational Biology Seminar, Keck Graduate Institute, CA
- 2005 *Evolutionary rates of loss and gain of gene expression*, EEMB Graduate Student Symposium, UC Santa Barbara, CA
- 2005 *Evolutionary rates of loss and gain of gene expression*, SICB annual meeting, San Diego, CA
- 1999 *Cluster formation and the peaks-formalism*, University of Copenhagen, Denmark
- 1999 *Cluster formation and the peaks-formalism*, Astronomical Society of New York Meeting, Vassar College, NY

1998 *Galaxy formation and the peaks-formalism*, University of Copenhagen, Denmark