

## RAGHUVVEER PARTHASARATHY

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### PROFESSIONAL PREPARATION

<b>Postdoctoral Institution</b>	<b>Area</b>	<b>Dates</b>
University of California, Berkeley	Chemistry / Biophysics	2002-2006
<b>Graduate Institution</b>	<b>Major/Area</b>	<b>Degree &amp; Year</b>
University of Chicago	Physics / Condensed Matter	Ph.D. (2002)
<b>Undergraduate Institution</b>	<b>Major</b>	<b>Degree &amp; Year</b>
University of California, Berkeley	Physics	A.B. (1997)

### APPOINTMENTS

Aug. 2019-present	• Associate Member, Knight Campus for Accelerating Scientific Impact
Sept. 2017-present	• Professor, Department of Physics, University of Oregon
Sept. 2016-present	• Alec and Kay Keith Professor, The University of Oregon
June 2016-present	• Co-director, University of Oregon Science Literacy Program
Sept. 2011-present	• Associate Professor, Department of Physics, University of Oregon
May 2008-present	• Associate Member, Institute of Molecular Biology, University of Oregon
June 2006-present	• Member, Materials Science Institute, University of Oregon
June 2006-Aug. 2011	• Assistant Professor, Department of Physics, University of Oregon
2002-2006	• Miller Research Fellow / Postdoctoral Fellow, University of California, Berkeley, Department of Chemistry
1997-2002	• Graduate research fellow, University of Chicago, Department of Physics. Advisors: Heinrich M. Jaeger and Thomas F. Rosenbaum

### AWARDS

2021	Williams Fellow, University of Oregon, for demonstrating "...an extraordinary commitment to undergraduate education"
2020	Fellow, American Physical Society, "For creative and innovative contributions to biological physics especially to our understanding of the gut microbiome and lipid bilayers."
2016	Alec and Kay Keith Professorship, The University of Oregon
2008	National Science Foundation CAREER Award
2007-2009	Alfred P. Sloan Research Fellowship
2002-2005	Miller Research Fellowship, University of California, Berkeley
2001-2002	Grainger Graduate Fellowship, Department of Physics, University of Chicago
1997-2000	NSF Graduate Research Fellowship
1997-2000	McCormick Fellowship, Department of Physics, University of Chicago
1997-1998	Sachs Fellowship, Department of Physics, University of Chicago
1997	Departmental Citation, Department of Physics, University of California, Berkeley
1995	Educational Initiatives Award, University of California, Berkeley

### PUBLICATIONS: BOOKS

- Raghuvveer Parthasarathy, *So Simple a Beginning: How Four Physical Principles Shape Our Living World* (Princeton University Press, Princeton, 2022). A general-audience book on how physical principles orchestrate the workings of living things. Publisher site: <https://press.princeton.edu/books/hardcover/9780691200408/so-simple-a-beginning>

## PUBLICATIONS: PAPERS

- Philip E. Jahl and Raghuvveer Parthasarathy, “Assessing the use of ellipsoidal microparticles for determining lipid membrane viscosity.” *Biophysical Journal* **120**: 5513-5520 (2021). [https://doi.org/10.1016/j.bpj.2021.11.020] PMID: 34800470 PMCID: PMC8715235
- Raghuvveer Parthasarathy, “Resource Letter: Biological Physics,” *The American Journal of Physics* **89**: 1071 (2021). [https://doi.org/10.1119/5.0060279]
- Brandon H Schlomann and Raghuvveer Parthasarathy, “Gut bacterial aggregates as living gels.” *eLife* **10**: e71105 (2021) [https://doi.org/10.7554/eLife.71105] PMID: 34490846] PMID: 34490846, PMCID: PMC8514234
- Deepika Sundarraman, Edouard A. Hay, Dylan M. Martins, Drew S. Shields, Noah L. Pettinari, and Raghuvveer Parthasarathy, “Higher-Order Interactions Dampen Pairwise Competition in the Zebrafish Gut Microbiome.” *mBio* **11**:e01667-20 (2020). [https://mbio.asm.org/content/11/5/e01667-20]
- T. J. Wiles, B. H. Schlomann, E. S. Wall, R. Betancourt, R. Parthasarathy, K. Guillemin, “Swimming motility of a gut bacterial symbiont promotes resistance to intestinal expulsion and enhances inflammation.” *PLoS Biol.* **18**, e3000661 (2020). [https://doi.org/10.1371/journal.pbio.3000661] PMID: 32196484
- Philip E. Jahl, Raghuvveer Parthasarathy, “Lipid Bilayer Hydrodynamic Drag.” *Phys. Rev. Research* **2**, 013132 (2020). [https://journals.aps.org/prresearch/abstract/10.1103/PhysRevResearch.2.013132]
- Brandon H Schlomann and Raghuvveer Parthasarathy, “Timescales of gut microbiome dynamics.” *Current Opinion in Microbiology*, **50**: 56-63 (2019). [https://www.sciencedirect.com/science/article/abs/pii/S1369527419300463]
- B. H. Schlomann, T. J. Wiles, E. S. Wall, K. Guillemin, R. Parthasarathy, “Sublethal antibiotics collapse gut bacterial populations by enhancing aggregation and expulsion.” *Proc. Natl. Acad. Sci.*, **116**: 21392-21400 (2019). [https://doi.org/10.1073/pnas.1907567116] PMCID: PMC6815146
- Catherine D. Robinson, Helena S. Klein, Kyleah D. Murphy, Raghuvveer Parthasarathy, Karen Guillemin, Brendan J. M. Bohannon, “Experimental bacterial adaptation to the zebrafish gut reveals a primary role for immigration.” *PLoS Biology* **16**: e2006893 (2018). [https://doi.org/10.1371/journal.pbio.2006893]
- E. A. Hay and R. Parthasarathy, “Performance of convolutional neural networks for identification of bacteria in 3D microscopy datasets.” *PLoS Computational Biology* **14**: e1006628 (2018). PMID: 30507940 [https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1006628]
- Brandon H Schlomann, Travis J Wiles, Elena S Wall, Karen Guillemin, Raghuvveer Parthasarathy, “Bacterial cohesion predicts spatial distribution in the larval zebrafish intestine.” *Biophysical Journal* **115**: 1-7 (2018). https://doi.org/10.1016/j.bpj.2018.10.017
- Savannah L Logan, Christopher Dudley, Ryan P Baker, Michael J Taormina, Edouard A Hay, Raghuvveer Parthasarathy, “Automated High-Throughput Light-Sheet Fluorescence Microscopy of Larval Zebrafish,” *PLOS ONE* **13**: e0198705 (2018). PMID: 30427839 [https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0198705]
- S. L. Logan, J. Thomas, J. Yan, R. P. Baker, D. S. Shields, J. B. Xavier, B. K. Hammer, R. Parthasarathy, “The *Vibrio cholerae* Type VI Secretion System Can Modulate Host Intestinal Mechanics to Displace Commensal Gut Bacteria.” *Proc. Natl. Acad. Sci.* **115**: E3779-E3787 (2018). PMID: 29610339 https://doi.org/10.1073/pnas.1720133115
- [Single-author paper from one of my students] Brandon Schlomann, “Stationary moments, diffusion limits, and extinction times for logistic growth with random catastrophes.” *Journal of Theoretical Biology* **454**: 154-163 (2018). [https://doi.org/10.1016/j.jtbi.2018.06.007]

- T. J. Wiles, E. S. Wall, B. H. Schlomann, E. A. Hay, R. Parthasarathy, K. Guillemin, “Modernized tools for streamlined genetic manipulation of wild and diverse symbiotic bacteria.” *mBio*, 9: e01877-18 (2018). <https://mbio.asm.org/content/9/5/e01877-18> PMID: 30301859 PMCID: PMC6178617
- J. Ganz, R. P. Baker, M. K. Hamilton, E. Melancon, P. Diba, J. S. Eisen, R. Parthasarathy, “Image velocimetry and spectral analysis enable quantitative characterization of larval zebrafish gut motility.” *Neurogastroenterology and Motility*, **30**: e13351 (2018). PMID: 29722095
- R. Parthasarathy, “Monitoring microbial communities using light sheet fluorescence microscopy.” *Curr. Opin. Microbiol.* **43**, 31–37 (2018). [<https://doi.org/10.1016/j.mib.2017.11.008>] PMID: 29175679 PMCID: PMC5963963
- V. L. Thoms, T. T. Hormel, M. A. Reyer, R. Parthasarathy, “Tension Independence of Lipid Diffusion and Membrane Viscosity.” *Langmuir* **33**, 12510–12515 (2017). PMID 28984459 [<http://pubs.acs.org/doi/full/10.1021/acs.langmuir.7b02917>]
- M. J. Taormina, E. A. Hay, R. Parthasarathy, “Passive and Active Microrheology of the Intestinal Fluid of the Larval Zebrafish.” *Biophysical Journal* **113**, 957–965 (2017). PMID 28834731 [[http://www.cell.com/biophysj/fulltext/S0006-3495\(17\)30797-X](http://www.cell.com/biophysj/fulltext/S0006-3495(17)30797-X)]
- Travis J. Wiles, Matthew L. Jemielita, Ryan P. Baker, Brandon H. Schlomann, Savannah L. Logan, Julia Ganz, Ellie Melancon, Judith S. Eisen, Karen Guillemin, Raghuvver Parthasarathy, “Host Gut Motility Promotes Competitive Exclusion within a Model Intestinal Microbiota.” *PLoS Biol.* **14**: e1002517 (2016). [PMID 27458727] [<http://journals.plos.org/plosbiology/article?id=info:doi/10.1371/journal.pbio.1002517>] Writeup in *phys.org*: [<http://phys.org/news/2016-07-real-time-imaging-fish-gut-ties.html>]
- J. T. Nichols, B. Blanco-Sánchez, E. P. Brooks, R. Parthasarathy, J. Dowd, A. Subramanian, G. Nachtrab, K. D. Poss, T. F. Schilling, C. B. Kimmel, Ligament versus bone cell identity in the zebrafish hyoid skeleton is regulated by *mef2ca*. *Development* **143**, 4430–4440 (2016). [PMID 27789622] [<http://dev.biologists.org/content/143/23/4430.long>]
- A. S. Rolig, R. Parthasarathy, A. R. Burns, B. J. M. Bohannan, K. Guillemin, “Individual Members of the Microbiota Disproportionately Modulate Host Innate Immune Responses.” *Cell Host Microbe*. **18**, 613–620 (2015). [PMID 26567512] [<http://www.sciencedirect.com/science/article/pii/S1931312815004199>]
- W. Z. Stephens, T. J. Wiles, E. S. Martinez, M. Jemielita, A. R. Burns, R. Parthasarathy, B. J. M. Bohannan, K. Guillemin, “Identification of Population Bottlenecks and Colonization Factors during Assembly of Bacterial Communities within the Zebrafish Intestine.” *mBio*. **6** (2015). [PMID 26507229] [<http://mbio.asm.org/content/6/6/e01163-15>]
- Tristan T. Hormel, Matthew A. Reyer, Raghuvver Parthasarathy, “Two-Point Microrheology of Phase-Separated Domains in Lipid Bilayers.” *Biophys. J.* **109**: 732–726 (2015). [PMID 26287625] [<http://www.cell.com/biophysj/abstract/S0006-3495%2815%2900723-7>]
- M. D. Hammers, M. J. Taormina, M. M. Cerda, L. A. Montoya, D. T. Seidenkranz, R. Parthasarathy, M. D. Pluth, “A Bright Fluorescent Probe for H<sub>2</sub>S Enables Analyte-Responsive, 3D Imaging in Live Zebrafish Using Light Sheet Fluorescence Microscopy.” *J. Am. Chem. Soc.* **137**: 10216–10223 (2015). [PMID 26061541] [<http://pubs.acs.org/doi/abs/10.1021/jacs.5b04196>]
- Raghuvver Parthasarathy, “The Physics of Life: an undergraduate general education biophysics course,” *Phys. Educ.* **50**: 358–366 (2015). DOI: 10.1088/0031-9120/50/3/358 <http://iopscience.iop.org/0031-9120/50/3/358/>
- Ryan Baker, Michael J. Taormina, Matthew Jemielita, and Raghuvver Parthasarathy, “A combined light sheet fluorescence and differential interference contrast microscope for live imaging of multicellular specimens,” *J. Microscopy* **258**:105–112 (2015). DOI: 10.1111/jmi.12220 [<http://onlinelibrary.wiley.com/doi/10.1111/jmi.12220/abstract>] [PMID 25611324]
- Matthew Jemielita, Michael J. Taormina, Adam R. Burns, Jennifer S. Hampton, Annah S. Rolig, Karen Guillemin, and Raghuvver Parthasarathy, “Spatial and temporal features of the growth of a bacterial

species colonizing the zebrafish gut,” *mBio* **5**: e01751-14 (2014).

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- Tristan T. Hormel, Sarah Q. Kurihara, M. Kathleen Brennan, Matthew C. Wozniak, and Raghuvver Parthasarathy, “Measuring Lipid Membrane Viscosity Using Rotational and Translational Probe Diffusion,” *Phys. Rev. Lett.* **112**, 188101 (2014). [PMID 24856725]  
[<http://journals.aps.org/prl/abstract/10.1103/PhysRevLett.112.188101>]
- Kyle J. Welch, Isaac Hastings-Hauss, Raghuvver Parthasarathy, and Eric I. Corwin, “Ballistic and diffusive dynamics in a two-dimensional ideal gas of macroscopic chaotic Faraday waves,” *Phys. Rev. E* **89**: 042143 (2014). [<http://journals.aps.org/pre/abstract/10.1103/PhysRevE.89.042143>]
- Alexander R. Small and Raghuvver Parthasarathy, “Superresolution Localization Methods,” *Annual Reviews of Physical Chemistry* **65**: 107-125 (2014). [<http://www.annualreviews.org/doi/abs/10.1146/annurev-physchem-040513-103735>]
- Andrew F. Loftus, Sigrid Noreng, Vivian L. Hsieh, and Raghuvver Parthasarathy, “Robust Measurement of Membrane Bending Moduli Using Light Sheet Fluorescence Imaging of Vesicle Fluctuations,” *Langmuir* **29**: 14588–14594 (2013). [<http://pubs.acs.org/doi/abs/10.1021/la403837d>] PMID: 24180269
- Matthew Jemielita\*, Michael J. Taormina\*, April DeLaurier, Charles B. Kimmel, and Raghuvver Parthasarathy, “Comparing phototoxicity during the development of a zebrafish craniofacial bone using confocal and light sheet fluorescence microscopy techniques,” *J. Biophotonics* **6**: 920-928 (2013) [\* = equal contributors] [<http://onlinelibrary.wiley.com/doi/10.1002/jbio.201200144/abstract>].
- Andrew F. Loftus, Vivian Hsieh, and Raghuvver Parthasarathy, “Modulation of membrane rigidity by the human vesicle trafficking proteins Sar1A and Sar1B,” *Biophys. Biochem. Res. Comm.* **426**: 585-589 (2012). [<http://dx.doi.org/10.1016/j.bbrc.2012.08.131>] PMID: 22974979
- Raghuvver Parthasarathy, “Cars and Kinetic Energy – Some Simple Physics with Real-World Relevance,” *The Physics Teacher* **50**: 395-397 (2012). [<https://aapt.scitation.org/doi/10.1119/1.4752039>]
- Michael J. Taormina\*, Matthew Jemielita\*, W. Zac Stephens, Adam R. Burns, Joshua V. Troll, Raghuvver Parthasarathy, and Karen Guillemin, “Investigating Bacterial-Animal Symbioses with Light Sheet Microscopy,” *Biol. Bulletin* **223**: 7-20 (2012). [\* = equal contributors] (Part of a special issue on “Discoveries in Animal Symbiosis in the ‘omics’ Age.”)
- Raghuvver Parthasarathy, “Rapid, accurate particle tracking by calculation of radial symmetry centers,” *Nature Methods* **9**: 724-726 (2012). [PMID 22688415]  
[<http://www.nature.com/nmeth/journal/vaop/ncurrent/abs/nmeth.2071.html>]
- Emily Goers Sweeney, J. Nathan Henderson, John Goers, Christopher Wreden, Kevin G. Hicks, Jeneva K. Foster, Raghuvver Parthasarathy, S. James Remington, and Karen Guillemin, “Structure and Proposed Mechanism for the pH-Sensing *Helicobacter pylori* Chemoreceptor TlpB,” *Structure* **20**: 1177-1188 (2012). (Featured on the journal cover; <http://www.cell.com/structure/issue?pii=S0969-2126%2812%29X0007-8>) [<http://www.sciencedirect.com/science/article/pii/S0969212612001815>]
- [Book Chapter] Raghuvver Parthasarathy, “Optics: Basic Physics,” in *Handbook of Biomedical Optics*, ed. D.A. Boas, C. Pitris, N. Ramanujam (CRC Press, 2011).
- Edward I. Settles\*, Andrew F. Loftus\*, Alesia N. McKeown, and Raghuvver Parthasarathy, “The vesicle trafficking protein Sar1 lowers lipid membrane rigidity,” *Biophys. J.* **99**: 1539-1545 (2010). [\* = equal contributors] [<http://www.cell.com/biophysj/abstract/S0006-3495%2810%2900803-9>] PMID: 20816066
- Yupeng Kong and Raghuvver Parthasarathy, “Different modulation mechanisms of attractive colloidal interactions by lipid and protein functionalization,” *Langmuir* **26**: 10541-10545 (2010) [<http://pubs.acs.org/doi/abs/10.1021/la1005538>].
- [Preview / Commentary paper; not a peer-reviewed article] Anica M. Wandler, Raghuvver Parthasarathy, and Karen Guillemin, “A greasy foothold for *Helicobacter pylori*,” *Cell Host & Microbe* **7**: 338-339 (2010) [[http://www.cell.com/cell-host-microbe/fulltext/S1931-3128\(10\)00142-3](http://www.cell.com/cell-host-microbe/fulltext/S1931-3128(10)00142-3)].

- Kamil Godula, K., Marissa L. Umbel, David Rabuka, Zsofia Botyanszki, Carolyn R. Bertozzi, and Raghuv​eer Parthasarathy. Control of the molecular orientation of membrane-anchored biomimetic glycopolymers. *J. Am. Chem. Soc.* **131**, 10263-10268 (2009) [<http://pubs.acs.org/doi/abs/10.1021/ja903114g>].
- Yupeng Kong and Raghuv​eer Parthasarathy, "Modulation of attractive colloidal interactions by lipid membrane functionalization," *Soft Matter*, **5**, 2027-2029 (2009) [<http://xlink.rsc.org/?doi=B821441G>].
- Christopher W. Harland\*, Zsofia Botyanszki\*, David Rabuka, Carolyn R. Bertozzi, and Raghuv​eer Parthasarathy, "Synthetic trehalose glycolipids confer desiccation resistance to supported lipid monolayers," *Langmuir* **25**: 5193-5198, (2009) [<http://dx.doi.org/10.1021/la804007a>]. [\*These authors contributed equally to this work]
- Gregory T. Tietjen, Yupeng Kong, and Raghuv​eer Parthasarathy, "An efficient method for the creation of tunable optical line traps via control of gradient and scattering forces," *Opt. Express* **16**: 10341-10348 (2008). [<http://www.opticsexpress.org/abstract.cfm?uri=oe-16-14-10341>]
- Christopher W. Harland, David Rabuka, Carolyn R. Bertozzi, and Raghuv​eer Parthasarathy, "The *M. tuberculosis* virulence factor trehalose dimycolate imparts desiccation resistance to model mycobacterial membranes." *Biophys. J.* **94**: 4718-4724 (2008). [<http://www.biophysj.org/cgi/content/abstract/94/12/4718>]
- Jay T. Groves, Raghuv​eer Parthasarathy, and Martin B. Forstner. Fluorescence Imaging of Membrane Dynamics. *Ann. Rev. Biomed. Engin.* **10**: 311-338, (2008). [<http://arjournals.annualreviews.org/doi/pdf/10.1146/annurev.bioeng.10.061807.160431>]
- Raghuv​eer Parthasarathy, David Rabuka, Carolyn R. Bertozzi, and Jay T. Groves. Molecular Orientation of Membrane-Anchored Mucin Glycoprotein Mimics. *J. Phys. Chem. B* **111**: 12133-12135 (2007).
- David Rabuka, Raghuv​eer Parthasarathy, Goo Soo Lee, Xing Chen, Jay T. Groves, and Carolyn Bertozzi, "Hierarchical Assembly of Model Cell Surfaces: Synthesis of Mucin Mimetic Polymers and Their Display on Supported Bilayers," *J. Amer. Chem. Soc.*, **129**: 5462-5471 (2007).
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- H. M. Rønnow, J. Jensen, R. Parthasarathy, G. Aeppli, T. F. Rosenbaum, D. F. McMorrow, and C. Kraemer, "Magnetic excitations near the quantum phase transition in the Ising ferromagnet LiHoF<sub>4</sub>," *Phys. Rev. B*, **75**: 054426 (2007). [<http://dx.doi.org/10.1103/PhysRevB.75.054426>]
- Raghuv​eer Parthasarathy\*, Cheng-han Yu\*, and Jay T. Groves, "Curvature modulated phase separation in lipid bilayer membranes," *Langmuir*, **22**: 5095-5099 (2006). [\*These authors contributed equally to this work]
- Raghuv​eer Parthasarathy and Jay T. Groves, "Coupled membrane fluctuations and protein mobility in supported intermembrane junctions," *J. Phys. Chem. B*, **110**: 8513-8516 (2006).
- Raghuv​eer Parthasarathy, Paul A. Cripe, and Jay T. Groves, "Electrostatically Driven Spatial Patterns in Lipid Membrane Composition," *Phys. Rev. Lett.* **95**: 048101 (2005).
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- Raghuv​eer Parthasarathy and Jay T. Groves, "Protein Patterns at Lipid Bilayer Junctions," *Proc. Natl. Acad. Sci.* **101**: 12798-12803 (2004).
- Raghuv​eer Parthasarathy and Jay T. Groves, "Optical techniques for imaging membrane topography," *Cell Biochem. Biophys.* **41**: 391-414 (2004).
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- Raghuvveer Parthasarathy, Xiao-Min Lin, Klara Elteto, T. F. Rosenbaum, and Heinrich M. Jaeger, “Percolating through Networks of Random Thresholds: Finite Temperature Electron Tunneling in Metal Nanocrystal Arrays,” *Phys. Rev. Lett.* **92**: 076801 (2004).
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- Thomas Scheibel, Raghuvveer Parthasarathy, George Sawicki, Xiao-Min Lin, Heinrich Jaeger, and Susan L. Lindquist, “Conducting nanowires built by controlled self-assembly of amyloid fibers and selective metal deposition,” *Proc. Natl. Acad. Sci.* **100**: 4527-4532 (2003).
- Raghuvveer Parthasarathy, Xiao-Min Lin, and Heinrich M. Jaeger, “Electronic transport in metal nanocrystal arrays: the effect of structural disorder on scaling behavior,” *Phys. Rev. Lett.* **87**: 186807 (2001). [<http://dx.doi.org/10.1103/PhysRevLett.87.186807>]
- Xiao-Min Lin, Raghuvveer Parthasarathy, and Heinrich M. Jaeger, “Direct patterning of self-assembled nanocrystal monolayers by electron beams,” *Appl. Phys. Lett.* **78**: 1915-1917 (2001). [<http://dx.doi.org/10.1063/1.1358363>]
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- D. H. Cobden, G. Pilling, R. Parthasarathy, P. L. McEuen, I. M. Castleton, E. H. Linfield, D. A. Ritchie, and G. A. C. Jones, “Current flow past an etched barrier: field emission from a two-dimensional electron gas,” *Europhys. Lett.* **41**: 327-332 (1998).
- R. Parthasarathy, C. Franck, R. Treffers, D. Cudaback, C. Heiles, C. Hancox, and R. Millan, “A rooftop radio observatory: an undergraduate telescope system at the University of California at Berkeley,” *Am. J. Phys.* **66**: 768-771 (1998).

#### INVITED RESEARCH TALKS (2011-2021)

- American Physical Society March Meeting 2021.
- EPFL (École Polytechnique Fédérale de Lausanne, Switzerland), Jan. 24, 2020.
- ETH Zurich (Swiss Federal Institute of Technology, Zurich); Materials Science seminar, Jan. 29, 2020.
- Virtual seminar: *Biophysics and Physical Biology*, June 12, 2020. <https://iyerbiswas.com/outreach/bppbseminars/schedule/> . The Zoom audience was 155 people.
- Virtual seminar: Reed University, Department of Biology, Sept. 25, 2020.
- Virtual seminar: NYU (Biology) Oct 6, 2020.
- Virtual seminar: University of Minnesota Biotechnology Institute, Oct 22, 2020.
- Virtual “Transport in the digestive tract” conference, mostly based in Paris, France. 23 Oct. 2020.
- American Physical Society March Meeting, focus sessions on *The Physics of Microbiomes and Microbial Communities*, March 5, 2019
- Carnegie Institution in Baltimore, MD, 2019 *Mini-Symposium on Biological Interactions*, June 14th, 2019
- University of Delaware, Physics Colloquium – Sept. 11, 2019.
- University of Texas at Austin, Physics Colloquium – Oct. 2, 2019.
- National Centre for Biological Sciences (NCBS), Bengaluru, India; Seminar Nov. 4, 2019

- Indian Institute of Technology – Madras, Chennai, India; Physics Colloquium Nov. 5, 2019
- Indian Institute of Science, Education, and Research – Tirupati, Tirupati, India; Seminar Nov. 8, 2019
- Indian Institute of Science, Bengaluru; Seminar Nov. 11, 2019
- University of Alberta, Physics Colloquium – Nov. 22, 2019.
- Arizona State University, Physics Colloquium – Dec. 5, 2019.
- McGovern Medical School at UTHealth, Houston, TX, Oct. 18, 2018.
- Aspen Center for Physics workshop on “Organizational principles of microbial communities,” June 11, 2018.
- Biophysical Society of Canada, May 23, 2018.
- Oregon Health Sciences University, Biomedical Engineering Seminar, April 27, 2018.
- University of California, Merced, Physics Colloquium, Sept. 1, 2017.
- Reed College, Pacific Northwest Quantitative Biology Conference, Sept. 2017.
- International Center for Theoretical Physics, Trieste, Italy: Joint ICGEB-ICTP-APCTP Workshop on Systems Biology and Molecular Economy of Microbial Communities, July 2017.
- Light Sheet Fluorescence Microscopy International Conference, Singapore, June 2017.
- Princeton University, Biophysics Seminar, April 2017.
- American Chemical Society National Meeting, August 2016. Symposium: “Advances in Biological Imaging”
- Aspen Center for Physics Winter Conference on “Physics of Development and Disease,” March 2016.
- American Physical Society Meeting, invited symposium: “Complex microbial communities,” March 2016.
- Oregon Health Sciences University, April 2015.
- Simon Fraser University, Dept. of Physics, April 2015.
- Oregon Institute of Marine Biology, April 2015.
- American Physical Society Meeting, March 2014.
- Biophysical Society Meeting, Feb. 2014.
- University of Washington, Department of Chemistry, May 2013.
- Life Technologies, Eugene, OR, March 2013.
- Oregon State University, Physics Department Colloquium, January 2013.
- American Physical Society Northwest Section Meeting, Oct. 2012.
- University of Southern California, Physics Colloquium, March 2011.

#### **GRADUATE STUDENTS SUPERVISED**

- I am presently the thesis advisor for four University of Oregon graduate students: Deepika Sundarraman, Julia Ngo, Susana Marquez Rosales, and Piyush Amitabh.
- Philip Jahl (Ph.D., Physics, 2021). Dissertation: *Measurement of Hydrodynamic Boundary Conditions and Viscosity of Lipid Membranes*. Present position: Image Analysis Software Engineer, Canfield Scientific.

- Brandon H. Schlomann (Ph.D., Physics, 2020). Dissertation: *Learning Biophysical Rules of Gut Bacterial Communities through Live Imaging of Zebrafish*. Present position: Postdoctoral Researcher, Department of Physics, UC Berkeley.
- Edouard A. Hay (Ph.D., Physics, 2019). Dissertation: *Identifying gut bacteria and their interactions using deep learning based image analysis and gnotobiotic experiments*. Present position: Founder, Emanometrics.
- Savannah L. Logan (Ph.D., Physics, 2018). Dissertation: *Imaging Vibrio Cholerae Invasion And Developing New Tools For 3d Microscopy Of Live Animals*. Present position: Postdoctoral Fellow, Colorado School of Mines.
- Ryan P. Baker (Ph.D., Physics, 2017). Dissertation: *Imaging And Analysis Of Larval Zebrafish Gut Motility, And Automated Tools For 3d Microscopy*. Present position: Software engineer, Pipeworks Software.
- Matthew L. Jemielita (Ph.D., Physics, 2015). Dissertation: *Imaging Bacterial Population Dynamics In The Zebrafish Intestine*. Present position: Research Scientist at Berkeley Lights.
- Tristan T. Hormel (Ph.D., Physics, 2015). Dissertation: *The Microrheology of Lipid Bilayers*. Present position: Postdoctoral researcher, Oregon Health Sciences University.
- Michael J. Taormina (Ph.D., Physics, 2014). Dissertation: *Developing methods based on light sheet fluorescence microscopy for biophysical investigations of larval zebrafish*. Present position: Research Scientist, Allen Institute for Brain Science.
- Andrew F. Loftus (Ph.D., Chemistry, 2014). Dissertation: *Measurement of membrane rigidity and its modulation by the vesicle trafficking protein Sar1*. Present position: Thermo-Fisher.
- Yupeng Kong (Ph.D. Physics, 2010). Dissertation: *Modulation of like-charge attraction by lipid and protein functionalized silica microparticles*. Present position: unknown.
- Christopher Harland (Ph.D. 2010). Dissertation: *Desiccation resistance and viscoelasticity in model membrane systems*. Present position: Director of Machine Learning and Data Engineering at Remitly.
- Maunta Manandhar (M.S. 2012). Present position: Nepal Bureau of Standards and Metrology.