Clifford Paul Brangwynne

Princeton University/HHMI
301 Hoyt Laboratory, Princeton NJ 08544
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Education

Harvard University
Ph.D. Applied Physics, June 2007

Carnegie Mellon University
B.S. Materials Science & Engineering, minor in Physics, with University Honors, May 2001

Professional Appointments

Princeton University

11/20-Present	June K. Wu '92 Professor of Engineering
8/23-Present	Founding Director, Omenn-Darling Bioengineering Institute
9/20-6/23	Director, Princeton Bioengineering Initiative
7/19-10/20	Professor, Chemical and Biological Engineering
7/17- 6/19	Associate Professor, Chemical and Biological Engineering
1/11-6/17	Assistant Professor, Chemical and Biological Engineering
	Associated Faculty, Lewis Sigler Institute, Quant. & Comp. Biology Program
	Associated Faculty, Molecular Biology
	Associated Faculty, Princeton Institute for the Science & Technology of Materials

9/18-Present **Howard Hughes Medical Institute**
HHMI Investigator

Marine Biological Laboratory

2024-	co-Director of MBL Physiology Course
6/22-Present	Whitman Fellow

8/07-12/10 **Max Planck Institute for Molecular Cell Biology and Genetics, & MPI for Physics of Complex Systems, Dresden, Germany**
Postdoctoral training with Profs. Tony Hyman (MPI-CBG) and Frank Jülicher (MPI-PKS).

Harvard University

5/02 –7/07 Doctoral research in the laboratory of Prof. David A. Weitz. Ph.D. Thesis title: "Mechanics and dynamics of microtubule bending"

Harvard Medical School, Department of Pathology

6/98 – 3/99 Researched directional cell migration and tissue morphogenesis
6/99 – 8/99 using light microscopy and soft lithographic cell patterning,
12/99 – 1/00 laboratory of Prof. Donald Ingber.

Center for Light Microscope Imaging and Biotechnology,
4/97 – 6/98 **Carnegie Mellon University**
Studied the mechanisms of cell migration using fluorescence imaging techniques incorporating phase contrast and differential interference contrast microscopy with extensive image processing, laboratory of Prof. Fred Lanni.

Professional Courses (taken)

Marine Biological Laboratory, Woods Hole, MA
"Physiology: Modern Cell Biology Using Microscopic, Biochemical and Computational Approaches", Summer 2006 (7 Weeks)

Ecole de Physique, Les Houches, France
"Physics of the Cell", March 2004 (2 Weeks)

Awards, Fellowships, & Highlights

- Dickson Prize in Medicine, 2023
- Raymond and Beverly Sackler International Prize in Biophysics, 2023*
  *Sackler funds are being donated to Opiod addiction-related causes
- Breakthrough Prize in Life Sciences, 2023
- Harvard University, John T. Edsall Lecture, 2023
- Penn Britton Chance Lecture, 2022
- Tsuneko & Reiji Okazaki Award, 2021
- HFSP Nakasone Award, 2021
- Wiley Prize in Biomedical Sciences, 2020
- Blavatnik Awards for Young Scientists, 2020 National Laureate
- Michael and Kate Bárány Award, Biophysical Society, 2020
- Marine Biological Laboratories, Friday Evening Lecture, 7/9/21
- JCB/JEM Neurodegeneration Symposium, Keynote Lecture (originally 9/15/20)
- EMBL Phase Separation Conference, Keynote Lecture, 5/11/22
- MacArthur Fellow, 2018-2023
- Keystone Condensate Conference, Keynote Lecture, 2019
- Caltech Vaughan Lecture, 2019
- APS Kavli Lecture, 2019
- iBiology Online Seminars, 2018 (viewed >82k times)
- HHMI Investigator, 2018-
- HHMI-Simons Faculty Scholar, 2016-2018
- ASCB-Gibco Emerging Leader Award, 2015
- Howard B. Wentz Jr., Junior Faculty Award, 2014
- Sloan Research Fellow, 2014

- NSF CAREER Award, 2013
- NIH New Innovator Award, 2012
- Searle Scholar Award, 2012
- Princeton Engineering Commendation List for Outstanding Teaching (*CBE 433/533 Mech. & Dynamics of Soft Living Matter, S11, F15,F16*)
- Helen Hay Whitney Fellowship, 2008-2010
- MPI-PKS, Dresden: Visiting Fellowship, 2007-2008

Press

https://www.upmc.com/media/news/050323-dickson-prize-brangwynne
https://cbe.princeton.edu/news/clifford-brangwynne-pioneer-study-living-cells-wins-dickson-prize-medicine
https://cen.acs.org/biological-chemistry/biochemistry/Protein-droplets-help-cells-respond-osmotic-stress/100/web/2022/11
https://www.dailyprincetonian.com/article/2022/11/christopher-eisgruber-princeton-university-president-engineering-priority-next-five-years
https://www.biopharmadive.com/news/biomolecular-condensates-biotech-startups/636848/
https://www.dailyprincetonian.com/article/2022/09/research-award-breakthrough-brangwynne-phase-separation-science-biology
https://www.princeton.edu/news/2022/09/22/brangwynne-wins-breakthrough-prize-revolutionary-view-living-cells
https://www.mbl.edu/news/breakthrough-prize-recognizes-discovery-mbl-new-organizing-principle-cells
https://physics.aps.org/articles/v15/148
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https://endpts.com/softbank-leads-150m-round-into-dewpoint-as-condensate-biotech-nears-clinic/
https://paw.princeton.edu/article/toolmakers-mind
https://www.nature.com/articles/s41587-021-00828-4
https://discovery.princeton.edu/2020/12/16/of-lava-lamps-and-living-cells/
https://www.chemistryworld.com/features/how-does-a-cell-know-what-kind-of-cell-it-should-be/4012667.article
https://www.towntopics.com/wordpress/2020/10/28/princeton-professor-is-2020-winner-of-blavatnik-award-for-young-scientists/
https://www.pnas.org/doi/10.1073/pnas.2017799117
https://www.quantamagazine.org/molecular-condensates-in-cells-may-hold-keys-to-lifes-regulation-20210107/
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https://www.bizjournals.com/boston/news/2020/11/16/biogen-alums-macarthur-genius-launch-new-biotec.html
https://www.fiercebiotech.com/biotech/nereid-launches-50m-from-apple-tree-partners-to-study-biomolecular-condensates
https://endpts.com/one-of-biotechs-flashiest-startups-is-finally-getting-some-competition-from-a-pioneer-in-a-brand-new-field/
https://www.science.org/doi/10.1126/science.371.6527.336
https://www.npr.org/sections/health-shots/2020/07/08/888687912/new-clues-to-als-and-alzheimers-from-physics
https://www.nature.com/articles/s41592-020-0855-3
https://www.nature.com/articles/d41573-019-00069-w
https://alumni.princeton.edu/stories/cliff-brangwynne-seeks-symphony-science-cells

https://www.scientificamerican.com/article/lava-lamp-proteins-may-help-cells-cheat-death/
https://www.bostonglobe.com/metro/2018/10/04/three-boston-area-figures-among-macarthur-fellows/X4kOeQ0GYnxkP6NOfJMgTO/story.html
https://patch.com/new-jersey/princeton/2-princeton-professors-awarded-macarthur-genius-grant
https://engineering.princeton.edu/news/2018/10/04/brangwynne-named-2018-macarthur-fellow-work-bioengineering
https://www.towntopics.com/wordpress/2018/05/23/brangwynne-wins-8m-for-biomedical-research/
https://knowablemagazine.org/article/living-world/2020/what-is-liquid-liquid-phase-separation
https://www.nature.com/articles/d41586-018-03070-2
https://www.science.org/doi/pdf/10.1126/science.334.6059.1048
https://rupress.org/jcb/article/214/2/122/38578/Cliff-Brangwynne-All-the-right-materials

Citizenship

United States of America, Republic of Ireland

Languages

English, Spanish (conversational), German (conversational)

Publications

Google Scholar:
https://scholar.google.com/citations?user=wAoRV_AAAAAJ&hl=en&oi=sra
Total Citations: 22,440; *H-Index:* 55 (as of Sept, 2023)
§ = Authors contributed equally
† = Corresponding Author

88. Shimobayashi S, Konishi K, Ackerman PJ, Taniguchi T, Brangwynne CP†. Critical capillary waves of bomolecular condensates. s*ubmitted*.
87. Choi C-H, Lee DSW, Sanders DW, Brangwynne CP†. Condensate interfaces can accelerate protein aggregation. *Biophysical Journal* (in revision).
86. Walls MT, Xu K, Brangwynne CP†, Avalos JL†. A Modular Design for Synthetic Membraneless Organelles Enables Compositional and Functional Control. *Nature Chemical Biology* (under review)
85. Rana U, Xu K, Narayanan A, Walls MT, Panagiotopoulos AZ, Avalos JL†, Brangwynne CP†. Asymmetric oligomerization state and sequence patterning can tune multiphase condensate miscibility. *Nature Chemistry* (in revision); *BioRxiv,* 2023 https://doi.org/10.1101/2023.03.11.532188
84. Strom A§, Kim Y§, Zhao H, Orlovsky N, Chang Y-C, Kosmrlj A, Storm C, Brangwynne CP†. Condensate-driven interfacial forces reposition DNA loci and measure chromatin viscoelasticity. *Cell* (in revision) *BioRxiv,* 2023 https://doi.org/10.1101/2023.02.27.530281
83. Treen N, Chavarria E, Weaver CJ, Brangwynne CP, Levine CP†. An FGF timer for zygotic genome activation. *Genes and Development*, 2023 http://www.genesdev.org/cgi/doi/10.1101/gad.350164.122
82. Patil A§, Strom AR§, Collings CK, Paulo J, Wauer T, Sankar A, St. Laurent J, Cervantes KS, Gygi SP, Brangwynne CP†, Kadoch C†. Specificity of an intrinsically disordered region-encoded interaction network within biomolecular condensates underlies chromatin remodeler activity. *Cell,* 2023 (in press)

81. Keber FC, Nguyen T, Brangwynne CP†, Wuhr M†, Evidence for widespread cytoplasmic structuring into mesoscopic condensates. *Nature Cell Biology* (in revision) B*ioRxiv* 2022
doi: https://doi.org/10.1101/2021.12.17.473234
80. Lee DSW, Choi C-H, Sanders DW, Beckers L, Riback J, Brangwynne CP†, Wingreen NS†. Size distributions of intracellular condensates reflect competition between coalescence and nucleation. *Nature Physics*, 2023
https://doi.org/10.1038/s41567-022-01917-0
79. Riback J§, Eeftens JM§, Lee DSW§, Quinodoz SA, Donlic A, Orlovsky N, Wiesner L, Beckers L, Becker LA, Strom AR, Rana U, Tolbert M, Purse BW, Kleiner R, Kriwacki R, Brangwynne CP†. Viscoelasticity and advective flow of RNA underlies nucleolar form and function. *Molecular Cell, 2023*
https://doi.org/10.1016/j.molcel.2023.08.006
78. Brangwynne CP†, Hyman AA†, Rosen MK†. The path to condensates - 19th Wiley Prize in Biomedical Sciences laureates share their discovery stories. *Natural Sciences*, 2022
77. Wu Y, Shao W, Basu A, Gendron T, Jones C, Park J, Jansen-West K, Daughrity L, Phanse S, del Rosso G, Tong J, Castanedes-Casey M, Oskarsson B, Wolozin B, Dickson D, Sanders D, Brangwynne CP, Emili A, Petrucelli L, Zhang Y-J. Poly(GR) commandeers G3BP1 generating abnormal disease granules in c9FTD/ALS. *submitted* 2022
76. Zhang Y§, Pyo AGT, Jiang Y, Brangwynne CP, Stone HA, Wingreen NS†. Interface resistance of bimolecular condensates. *BioRxiv* 2022
https://doi.org/ 10.1101/2022.03.16.484641
75. Lee DSW, Strom A, Brangwynne CP†. The mechanobiology of nuclear phase separation. *APL Bioengineering*, 2022 https://doi.org/10.1063/5.0083286
74. Gouveia B§, Kim Y§, Shaevitz J, Petry S, Stone HA†, Brangwynne CP†. Capillary forces generated by biomolecular condensates. *Nature* 2022 https://doi.org/10.1038/s41586-022-05138-6
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72. Shimobayashi S, Sanders DW, Ronceray P, Haataja M, Brangwynne CP†. Nucleation landscape of biomolecular condensates. *Nature* 2021 https://doi.org/10.1038/s41586-021-03905-5
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70. Zhang Y§, Lee DSW§, Meir Y, Brangwynne CP, Wingreen NS†. Mechanical frustration of phase separation in the cell nucleus by chromatin. *Physical Review Letters* 2021 https://doi.org/10.1103/PhysRevLett.126.258102

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66. Safari MS, King MR, Brangwynne CP, Petry S†. Interaction of spindle assembly factor TPX2 with importins-α/β inhibits protein phase separation. *Journal of Biological Chemistry*, 2021 DOI:https://doi.org/10.1016/j.jbc.2021.100998
65. Mark Esposito, Cao Fang, Katelyn Cook, Nana Park, Yong Wei, Chiara Spadazzi, Dan Bracha, Hannah Slabodkin, Ramesh Gunaratna, Gary Laevsky, Christina DeCoste, Clifford P. Brangwynne, Ileana M. Cristea, Yibin Kang†. TGFbeta-induced Dact1 biomolecular condensates repress Wnt signaling via multivalent protein-protein interactions. *Nature Cell Biology*, 2021 DOI: 10.1038/s41556-021-00641-w
64. Lee DSW, Wingreen N, Brangwynne CP†. Chromatin mechanics dictates sub-diffusion and coarsening dynamics of embedded condensates. *Nature Physics,* 2021 https://doi.org/10.1038/s41567-020-01125-8
63. Treen N, Shimobayashi SF, Eeftens J, Brangwynne CP. Levine MS†. Properties of Repression Condensates in Living Ciona Embryos. *Nature Communications,* 2021 *12:1561*
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58 Wei M-T, Chang Y-C, Shimobayashi SF, Shin Y, Brangwynne CP†. Nucleated transcriptional condensates amplify gene expression. *Nature Cell Biology*, 22 1187-1196, 2020

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46. Shivers J, Uppaluri S, Brangwynne CP†. Microfluidic immobilization and subcellular imaging of developing Caenorhabditis elegans. *Biomicrofluidics,* 2017 (doi:10.1007/s10404-017-1988-2)
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29. Zhu L, Brangwynne CP†. Nuclear Bodies: The emerging biophysics of nucleoplasmic phases. *Current Opinion in Cell Biology,* 34:23-30, 2015
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IL-1β in fibroblast-mediated stiffening of collagen gels. *FASEB Journal,* 21(9):2064-2073*,* 2007

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2. Brangwynne CP, Huang S, Parker KK, Ingber DE. Symmetry-breaking in mammalian populations migrating in vitro. *In Vitro Cell and Developmental Biol*ogy *Animal,* 36:563-5, 2000
1. Chen CS, Brangwynne CP, Ingber DE. Pictures in cell biology: squaring up to the cell shape debate. *Trends in Cell Biology,* 9:283, 1999

Book Chapters

- Goldmann W, Alonso JL, Bojanowski K, Brangwynne CP. et. al. Cell Shape Control and Mechanical Signalling through the Cytoskeleton. In: *The Cytoskeleton and Signalling: A Practical Approach.* : Carraway, K, Oxford, England: Oxford University Press, 245-276, 1999
- Gardel ML, Kasza KE, Brangwynne CP, Liu J, Weitz DA. Ch.19 Mechanical Response of Cytoskeletal Networks, In: *Methods in Cell Biology*, eds. John J. Correia and H. William Detrich, III, 89:487-519, 2008

Textbook Contributions

- Molecular Biology of the Cell, Alberts et.al. 9th Edition, Figure 3-78 adapted from Brangwynne et.al. *PNAS* 2011
- (Cover Image) Cell and Molecular Biology: Concepts and Experiments, Gerald Karp, 3rd Edition
- (Cover Image) Laboratory Investigations in Cell and Molecular Biology, Allyn Bregman, 4th Edition

Patents

- “Optogenetic tool for rapid and reversible clustering of proteins”, Brangwynne CP, Toettcher JE, Shin Y. US10533167B2

- "Disordered protein-based seeds for molecular clustering", Brangwynne CP, Bracha D. US20200095569A1
- "System and method for inducing clusters of gene regulatory proteins targeted to specific genetic loci" US20210047659A1 Brangwynne CP, Shin Y, Bracha D
- "High throughput method and system for mapping intracellular phase diagrams", Brangwynne CP, Bracha D, Jumper C, Ackerman P. US 2021/0350875
- "Methods of screening inhibitors of bimolecular interactions using phase separation as in cellulo read-out", Brangwynne CP, Jumper C, Ackerman P, Bracha D. WO2022159642A3
- "System and method for modulating stress granule assembly", Brangwynne CP, Drake V, Sanders DW. WO2020014588A1
- *<Numerous other provisional and full patent applications have been filed nationally and internationally>*.

Entrepreneurship

Nereid Therapeutics (Founder, Chair SAB, Consultant)
$50M Series A Funding, Apple Tree Partners

Research Funding

- (PI) Multdisciplinary University Research Initiative (MURI), Air Force Office of Scientific Research, "Uncovering and applying the interfacial design principles of multiphasic natural and synthetic organelles
- (PI) National Institutes of Health (1R21DA056345), 09/2015-8/2018 "On-demand neuronal condensate interactomes using new optogenomics tools"
- (PI) Howard Hughes Medical Institute, Transformative Technology Award, "NanoCIE: Nanoscale Condensate Imaging and Engineering Facility" 2019
- (PI) Princeton SEAS Focused Research Team, "Engineering Intracellular Organelles" 10/1/2018-9/30/2021
- (PI) Investigator, Howard Hughes Medical Institute, 9/1/2019-8/31/2026 (first seven year appointment)
- (co-PI) US-Israel Binational Science Foundation, "Architecture and stability of non membranated organelles investigated by novel cryo-electron tomography". 3/1/2017-2/28/2020
- (PI) Howard Hughes Medical Institute & Simons Foundation, 11/1/2016-10/31/2018, HHMI-Simons Faculty Scholar Award
- (PI) Defense Advanced Research Projects Agency (DARPA), 11/1/2016-10/31/2017 "Cyborg Computation with Liquid Phases of Cytoplasm"
- (PI) National Institutes of Health (1DP2 GM105437-01), 09/2012-08/2017 NIH New Innovator Award "Cell Growth Control by Cell and Organelle Size-Dependent Ribosome Biogenesis"
- (co-PI) St. Jude Children's Research Hospital, 12/2016-11/2021; renewed through 2026

Consortium on “Intracellular Phase Transitions in Health and Disease”

- (PI) National Institutes of Health (U01 DA040601-01), 09/2015-8/2018
  “Optogenetic droplets: Using light to control nucleoplasmic phase separation”
- (PI) National Science Foundation (PHY-1253035), 09/2013-08/2018
  “CAREER: Non-equilibrium RNA/Protein Liquids and Intracellular Phase Transitions”
- (PI) Human Frontier Science Program (RGP0007/2012), 10/2012-09/2015
  “RNA Helicases in RNA/Protein Body Assembly and Function: A Multi-scale Approach”
- (PI) Searle Scholars Program, 07/2012-06/2015
  “Scaling Nucleolar Function for Cell Growth Control”
- (co-PI) Eric and Wendy Schmidt Transformative Technology Fund, 4/2014-4/2016
  “A Three-Dimensional NanoRheometer (3-DNR) for Soft Matter Research”
- (co-PI) National Science Foundation (MRSEC DMR-0819860), 01/2014-10/2020
  “Structure and Dynamics in Confined Polymers”
- (PI) Alfred P. Sloan Foundation (BR2014-002), 09/2014-09/2016
  Sloan Research Fellowship in Computational & Evolutionary Molecular Biology
- (PI) Howard B. Wentz Junior Faculty Award, 9/2014-8/2016

Conference Organization

- Princeton University, “Phase Behavior in Soft and Living Matter”, two-day hybrid in-person/virtual symposium including speakers from Duke, UNC Chapel Hill, Washington University in St. Louis, Nov 18-19, 2021
- Princeton University, Princeton Bioengineering Initiative, virtual one-day symposium with speakers from Princeton, Berkeley, MIT, Bristol Myers Squibb, Genmab, Johnson & Johnson, and Medtronic, Nov 20, 2020
- Princeton University, Biomolecular Condensate Initiative, Virtual mini-symposium, May 27, 2020 (One-day, 12 Princeton speakers)
- New York Academy of Science Meeting on “Phase Separation in Biology and Disease”, New York, NY, Feb 20, 2019
- EMBL Meeting on “Cellular Mechanisms Driven by Phase Separation”, Heidelberg, Germany, May 14-18, 2018,
- 2015 Annual Meeting of the American Society of Cell Biology, San Diego, December 2015, Co-organizer of Symposium on “Nucleation Phenomena in Cell Biology”
- Princeton Center for Theoretical Science (PCTS), Program on Phase Transitions in Cell Biology, April 20-22, 2015
- 2014 AIChe Annual Meeting, Atlanta, Co-chair session on Cellular Biomechanics
- 2014 Annual Meeting of the American Physical Society, Denver, Chair of Symposium on Phase Transitions in Cells
- 2013 Annual Meeting of the American Society of Cell Biology, New Orleans, Chair (substitute) of Frontier Symposium on “Physical Biology of the Cell”
- 2013 Annual Meeting of the American Society of Cell Biology, New Orleans,

December 2013, Co-organizer of Symposium on “Physical Approaches to Nuclear Structure and Function”

- 2012 Annual Meeting of the American Society of Cell Biology, Mini-symposium Co-organizer, “Micro and Coding RNA”
- Mini-Meeting on “RNA/Granule Assembly”, Princeton, May 2012

Teaching

- Princeton Wintersession “BioEntrepreneurship: Translating Academic Research into Biotech Impact”, Jan 17-21, 2022 & Jan 23-27 2023 - lead course instructor, co-taught with Tony Williams (OTL)
- Introduction to Cellular and Molecular Biology, MOL 214 (co-taught w/ Prof. Dan Notterman): F18, F21
- Mechanics and Dynamics of Soft Living Matter, CBE 433/533: S11, F12, F14, F15, F16, F17, S19, S20, S21, S23
- Advanced Heat and Mass Transfer, CBE 505: S13, S14, S15, S16, S17
- Physiology Course Instructor, Marine Biological Laboratory, Woods Hole, MA Summer 2008 (2 weeks, w/ Tony Hyman), Summer 2019 (2 weeks), Summer 2022 (2 weeks), Summer 2023 (2 weeks)
- Guest Lecturer:
  - Electricity, Magnetism, and Photonics EGR 153 (S22)
  - Graduate Seminar in Biomed. Eng., ELE547 (S13)
  - Developmental Biology, MOL507 (F12)
  - Polymer Viscoelasticity, CBE542 (S15)
  - Biological networks across scales: Open problems and research methods of systems biology, QCB535 (F22)
  - Method & Logic in Quantitative Biology, MOL515 (F12, F13, F14, F15, F16, F17, F18, F20, F22)

Mentoring

Graduate Students

Current

- Jordy Botello (Mol. Biol., NSF Fellow)
- Claire Weaver (Mol. Biol.; co-advised w/ Mike Levine, NSF Fellow)
- Lennard Wiesener (Chem. & Biol. Eng., NSF Fellow)
- Hailey Tanner (Chem. & Biol. Eng.)
- Lifei Jiang (Mol. Biol; co-advised w/ Yibin Kang)
- Jessica Zhao (Chem. & Biol. Eng.)

(*Defending AY 23-24:)*

- Mack Walls (Chem. & Biol. Eng., co-advised w/ Jose Avalos; NSF Fellow)
- Yi-Che Chang (Chemistry)
- Chang-Hyun Choi (Chem. & Biol. Eng.)
- Ushnish Rana (Chem. & Biol. Eng.; co-advised w/ Thanos Panagiatopoulos)

- Yoonji Kim (Mol. Biol.)
- Kevin Xu (Chem. & Biol. Eng.; co-advised w/ Jose Avalos)

Former

- Daniel Lee, PhD (QCB 2015-2021; co-advised w/ Ned Wingreen; NSF Fellow)
- Nicole Taylor, PhD (CBE 2013-2019; NSF Fellow; Currently Research Investigator, Bristol Myers Squibb)
- Lian Zhu, PhD (2013-2019; NSF Fellow; Currently Senior Engineer, Becton Dickinson)
- Marina Feric, PhD (2011-2016; Currently Assistant Professor, Penn State)
- Victoria Drake, MSE (2017-2018; Currently Research Scientist, Alexion Pharmaceuticals)

Former Visiting Students

- Wanliang Shan, PhD (2012, MAE; Currently Assistant Professor, University of Nevada, Reno)
- Zi Chen, PhD (2011-2012, MAE; Currently Assistant Professor, Dartmouth College)

Postdoctoral Fellows

Current

- Anita Donlic
- Sofi Quinodoz (HHMI Hannah Gray Fellow)
- David Sanders
- Amal Narayanan (LSRF Fellow)
- Jing Xia
- Nima Jaberi-Lashkari
- Amy Strom (K99 Awardee, Former LSRF/Mark Foundation Fellow)
- Lindsay Becker (Helen Hay Whitney Fellow)

Former

- Felix Keber, EMBO Fellow, joint with Prof. Wühr 2019-2023; Currently staff scientist, Princeton University
- Shunsuke Shimobayashi, JSPS Postdoctoral Fellow 2018-2022; Currently Associate Professor, Kyoto University
- Dan Bracha, HFSP Cross-Disciplinary Postdoctoral Fellow 2017-2021; Currently Assistant Professor, Technion University
- Joshua Riback, Postdoctoral Fellow 2018-2021; Currently Assistant Professor, Baylor College of Medicine
- Jorine Eeftens, Rubicon Postdoctoral Fellow 2018-2021; Currently Assistant Professor, Radboud University
- Paul Ackerman, Postdoctoral Fellow 2017-2020; Currently Scientist at Nereid Therapeutics
- Chanelle Jumper, Postdoctoral Fellow 2018-2020; Currently Scientist at Nereid Therapeutics

- Steven Ming-Tzo Wei, Postdoctoral Fellow 2014-2020; Currently Research Scientist, BMS/Celgene
- Yongdae Shin, Postdoctoral Fellow 2014-2018; Currently Assistant Professor, Seoul National University
- Stephanie Weber, Damon Runyon Postdoctoral Fellow 2011-2015; Currently Associate Professor, McGill University
- Shana Elbaum-Garfinkle, K99 Postdoctoral Fellow 2012-2017; Currently Assistant Professor, CUNY Advanced Science Research Center
- Sravanti Uppaluri, 2012-2015; Currently Assistant Professor, Azim Premji University
- Huaiying Zhang, Visiting Postdoctoral Fellow 2015; Currently Assistant Professor, Carnegie Mellon University
- Nilesh Vaidya, Helen Hay Whitney Fellow, 2013-2016; Currently Senior Scientist, GSK

Professional Affiliations

American Society of Cell Biology (ASCB)
American Institute of Chemical Engineers (AIChe)
American Physical Society (APS)
Genetics Society of America (GSA)
Biophysical Society (BPS)

Princeton Service

(only major University service listed; non-exhaustive list)

- Founding Director, Omenn-Darling Bioengineering Institute, 2023-
- Director, Princeton Bioengineering Initiative, 2020-2023
- Princeton Biomolecular Condensate Program, Founder, 2020-
- BioE Colloquium Founder and Organizer, AY13-14, AY14-15, AY15-16, AY16-17
- Founder, Rising Stars in BioE Seminar Series, 2020-
- Molecular Biology Junior Faculty Search Committee, AY14-15
- Committee on the Course of Study, AY14-15
- Co-chair, BioE Faculty Search Committee, AY17-18, AY18-19, AY20-21, AY21-22, AY22-23
- BioE Building Committee, AY20-21
- CBE Junior Faculty Search Committee, AY18-19
- Bioengineering Working Group, S17
- Institutional Biosafety Committee, AY17-18, AY18-19
- CBE Safety Committee, AY18-19
- SEAS New Engineering Complex Buildings Committee, AY17-18
- Freshman Advisor (Forbes), AY14-15, AY15-16, AY16-17, AY17-18, AY18-19

Editorial Boards

PRX Life (2023-), Physical Review Applied (2017-2020), Scientific Reports (2017-2019)

Manuscript Reviews

Science, eLife, Nature, Nature Chemistry, Nature Materials, Nature Physics, Nature Cell Biology, Nature Genetics, Cell, Developmental Cell, Molecular Cell, Proceedings of the National Academy of Sciences, USA (PNAS), Current Opinion in Cell Biology, Trends in Biochemical Sciences, Trends in Cell Biology, European Molecular Biology Organization (EMBO) Journal, Development, Current Biology, Biophysical Journal, Molecular Biology of the Cell, Journal of the Royal Society Interface, Journal of Colloids and Interface Science, Physical Review Letters, others.

Grant Reviews

Human Frontiers Science Program Grant Committee 2017, 2018, 2019, 2020; National Science Foundation (Physics of Living Systems Panel 2014,2015; Materials World Network proposal 2012); Air Force Office of Scientific Research (Young Investigator Program proposal 2012); Swiss National Science Foundation 2014; Wellcome Trust 2016

Invited Talks

2023

196 University of Pittsburgh School of Medicine, Dickson Prize Lecture "Living Droplets: A liquid phase paradigm for biological organization", May 12, 2023

195 Princeton University, Princeton Materials Institute Symposium, "The genome as material", Princeton, NJ, April 3, 2023

194 Harvard University, Department of Molecular Biology John T. Edsall Lecture, "A fluid paradigm for biological organization", March 23, 2023

193 Princeton University, Princeton/NINS (Japan) Symposium, "Liquid Motors: Force generation by bimolecular condensates", Princeton, NJ, March 23, 2023

192 Marine Biological Laboratory, Special Event "An Evening with Cliff Brangwynne", New York City, NY, March 15, 2023

191 Keystone Meeting, Bimolecular Condensates, "(very) Complex Fluids: Form, function, and complexity in bimolecular condensates", Vancouver, Canada, Jan 31, 2023

2022

190 Penn, Britton Chance Distinguished Lecture in Engineering and Medicine, "A fluid paradigm for biological organization", Philadelphia PA, October 26, 2022

189 Condensate Colloquium Series, virtual talk and panelist, "Condenstes 2.0: Challenges and opportunities for the next decade", October 25, 2022

188 NIH NCI Virtual Symposium on Chromosome Biology: The Biology& Biophysics of the Nucleus, "(very) Complex Fluids: Why nuclear condensates are so interesting", October 21, 2022

187 WUSTL Symposium for the launch of the Center for Biomolecular Condensates, "Liquid Motors: Condensates as mechanical force generators", St. Louis MO, October 14, 2022

186 Sanford Burnham Prebys Annual Symposium, Organelle Biology in Health and Disease, "Organelles sans frontieres: Reverse engineering condensate form and function", San Diego CA, October 7, 2022

185 CSHL Meeting on Epigenetics & Chromatin, "Nuclear Condensates: in, on, and around the genome", Long Island NY, September 21, 2022

184 HHMI Meeting, "Biomolecular condensates as force-generating motors", Janelia Research Campus, VA, September 13, 2022

183 HFSP Annual Meeting, Nakasone Prize Lecture, "A fluid paradigm for biological organization", Paris, France, August 30, 2022

182 St. Jude Children's Research Hospital, Virtual symposium on Bringing Chemistry to Medicine, "Intracellular phase transitions: the fluidity of biological function", July 21, 2022

181 MBL Physiology Course lecture, "A fluid paradigm for biological organization", Woods Hole MA, June 21, 2022

180 Ludwig Maximillian University, virtual seminar series on Engineering Life, "Mechanics of intracellular phase separation", June 2, 2022

179 Keynote talk at EMBO Meeting on Cellular Mechanisms Driven by Phase Separation, Heidelberg, Germany, May 11, 2022

178 St. Jude Children's Research Hospital, Joint Collaborative Meeting, "Intracellular phase transitions: the physics of cell function and disease", Memphis TN, April 25, 2022

177 Rutgers Institute for Quantitative Biomedicine virtual Crash Course: Intrinsically disordered biological macromolecules in cellular signaling/regulation, "Understanding condensates within living cells", April 19, 2022

176 Duke University, Cell Biology Distinguished Lecture seminar series, "Intracellular phase transitions: The fluidity of biological function" (virtual), March 21, 2022

175 Condensate Colloquium Series, virtual talk on "Condensate viscoelasticity & biological function", March 15, 2022

174 Columbia University, Department of Chemical Engineering virtual seminar, "Intracellular Phase Transitions: From viscoelasticity to biological function", February 15, 2022

173 Allen Institute, Nucleolus virtual discussion group, "rRNA dynamics in the nucleolus", February 14, 2022

172 Okazaki Award Lecture, virtual talk on "Liquid phase condensation in cell physiology and disease", Feb 1, 2022

2021

171 MURI Program Review Meeting, virtual talk on "Uncovering and applying the interfacial design principles of multiphase natural and synthetic organelles", Dec 8, 2021

170 Keystone Symposium on Higher Order Chromatin Architecture, "Nucleolar viscoelasticity and ribosome biogenesis", Oct 17, 2021

169 Rutgers University, Distinguished Speakers graduate student-run seminar series (virtual), "A Liquid paradigm for biological organization", Nov 8, 2021

168 EpBioE Meeting (virtual), "Intracellular condensates: rheology and biological function", Nov 4, 2021

167 CSHL Transcription Meeting (virtual), "rRNA dynamics in the nucleolus", Sept 3, 2021

166 MBL Friday Evening Lecture Series, "A liquid paradigm for biological organization", July 9, 2021

165 Oxford University "Physics Meets Biology" (virtual), Keynote talk on "Physics of Intracellular Phase Transitions", July 26, 2021

164 HFSP Nakasone Award Ceremony Talk, July 5, 2021

163 UCSF Protein Homeostasis Mini-Course, May 19, 2021

162 Brazilian Biophysical Society, 20 IUPAB Congress (virtual), "Forward and reverse engineering states of matter in living cells", May 26, 2021

161 Rockefeller JCB/JEM Symposium on "Neurodegenerative Diseases: Emerging mechanisms and Therapeutic opportunities" (virtual); talk title: "Mapping reversible and irreversible phase transitions in living cells", April 26, 2021

160 NIH RNA Biology Symposium (virtual), "Mapping protein/rna phase separation in living cells", April 15, 2021

159 Wiley Prize Symposium (virtual), "Intracellular phase separation: Physics of living matter", April 9, 2021

158 UCLA Molecular Biology Institute Seminar (virtual), "Fluid forces - phase separation in, on, and around the genome", April 8, 2021

157 American Physical Society, 2021 Annual Meeting (virtual), Session on Non-Linear Dynamics in Cell Mechanobiology, "Anomalous Liquids: Phase separation in, on, and around the genome" March 15, 2021

156 Japan, Riken BDR Symposium on Structuring Biosystems (virtual), "Nucleation landscape of biomolecular condensates", March 1, 2021

155 Yale University, Department of Biomedical Engineering Seminar (virtual), "Forward and reverse engineering states of matter in living cells", Jan 26, 2021

154 Vienna, Austria, Joint seminar of IMP, IMBA and Max Perutz labs (virtual), "Forward and reverse engineering states of matter in living cells", Jan 21, 2021

2020

152 University of Oregon, Institute of Molecular Biology (virtual), “Liquid phase condensation in cell physiology and disease”, Nov 17, 2020

151 KNAW Dutch Biophysics Meeting (virtual), “Nucleation landscape of biomolecular condensates”, Nov 10, 2020

150 Princeton University ENGAGE Virtual Symposium (virtual), “Covid19: Targeting its Fatty Underbelly”, Nov 6, 2020

149 Georgetown-Lombardi Oncology Grand Rounds/Visiting Professor (virtual), “Liquid phase condensation in cell physiology and disease”, October 16, 2020

148 International Titisee Conference on Genome folding: physics and function (virtual), “Telomeric condensates”, October 15, 2020

147 New York Genome Center, Covid19 Discussion Group (virtual), “Adventures in Spike-ACE2 mediated membrane fusion: Sex hormones, drugs, and high throughput rock ’n roll”, Sept 14, 2020

146 NIH FusOnC2 Annual Meeting, (Reverse) Engineering Liquid States of Intracellular Matter (virtual), Sept 10, 2020

145 National Academy of Sciences, Decadal Review in Biological Physics (virtual), “Liquid intracellular condensates: Self-assembly of bimolecular matter”

144 New York Academy of Sciences, Symposium on CRISPR, “Liquid nuclear condensates: in, on, and around the genome”, NYC, February 24, 2020

143 Biophysical Society Annual Meeting, San Diego CA, February 16, 2020, “Encoding multiphase cytoplasmic structure” (Symposium on “Fuzzy Interactions and Crowding”)

2019

142 NIH 4D Nucleome Annual Meeting, Washington, DC, December 6, 2019, “The Liquid Nucleome”

141 UT Southwestern Medical Center, Symposium on Neurodegeneration, Dallas, TX, October 24, 2019, “A Fluid View of Cytoplasmic Stress”

140 University of Virginia, Distinguished Guest Lecturer in Integrative Biosciences Course, Charlottesville, VA, October 2, 2019, “Liquid Organelles: Moving through intracellular phase space “

139 Albert Einstein College of Medicine, Departmental of Cell Biology Seminar Series, New York, NY, September 9, 2019, “Liquid Organelles: Moving through intracellular phase space”

138 “Soft Matter” Gordon Conference, New London, NH, August 12-16, 2019, “Nucleating Liquid Phase Organelles”

137 Marine Biological Laboratory, Physiology Course, Woods Hole, MA, July 24, 2019, “Self-assembly of intracellular matter”

136 “Proteins” Gordon Conference, Holderness, NH, June 17-21, 2019, “Mechanics of nucleating functional protein condensates”

135 Harvard University, Molecular Biology Department Seminar, May 20, 2019, “Reverse-engineering intracellular phase space”

134 National Cancer Institute, workshop on Phase Separation and Cancer, NIH Campus, May 14-15, 2019, “Mechano-active liquid condensates and the genome”

133 Keystone Conference on Biomolecular Condensates, Snowbird UT, April 10-14, 2019, Keynote Lecture, “Moving through Intracellular Phase Space”

132 Vaughan Lecture, California Institute of Technology, Department of Chemical Engineering, Pasadena CA, March 15, 2019, “Controlling intracellular phase transitions with light”

131 American Physical Society (APS) March Meeting, Kavli Lecture, Boston, MA, March 6, 2019 “Intracellular liquid condensates: Understanding and controlling biomolecular phase transitions in living cells”

130 New York Academy of Science Conference on Phase Separation, New York, NY, February 20, 2019, “Interaction nodes in phase separation”

129 University of Puerto Rico, Rio Piedras, RISE/MARC Program Seminar, San Juan Puerto Rico, February 15, 2019, “Lighting up intracellular phase space”

128 2019 World Economic Forum, Davos Switzerland, “Bioengineered Intracellular Condensates”

127 Rice University, Center for Theoretical Biological Physics, Houston, TX, “Lighting up intracellular phase space”

126 BMES 2019 Cellular and Molecular Bioengineering Conference, San Diego, CA, January 4, 2019, “Mechanics of intracellular phase separation”

2018

125 Banbury Center conference on Phase Separated Assemblies in Cell Biology, Cold Spring Harbor Laboratory, NY, December 16-19, 2018, “Mechanics of phase separation”

124 NIH 4D Nucleome Annual Meeting, San Diego, CA, December 5, 2019, “Mechano-active liquid nuclear condensates”

123 Conference: “RNA at the bench and bedside”, La Jolla, CA, October 8-10, 2018, “Lighting up intracellular phase space”

122 3rd International Meeting of the French Society for Cell Biology - Building the Cell, Paris, France, September 26-28 2018, “Lighting up intracellular phase space”

121 11th International Conference on Ribosome Synthesis, Orford, Quebec, Canada, August 1, 2018, “Lighting up the nucleolus”

120 iBiology Seminar 3 (recorded at Lasker Foundation, New York, NY, July 25, 2018), “Using light to study and control intracellular phase behavior”

119 iBiology Seminar 2 (recorded at Lasker Foundation, New York, NY, July 25, 2018), “Multiphase liquid behavior of the nucleolus”

118 iBiology Seminar 1 (recorded at Lasker Foundation, New York, NY, July 25, 2018), “Liquid Phase Condensation in Living Cells”

117 World Biomechanics Congress, Dublin, Ireland, July 10, 2018, “RNA protein liquids: lighting up intracellular phase space”

116 Memorial Sloan Kettering Cancer Center, Department of Cell Biology seminar, New York, NY, June 21, 2018, “RNA protein liquids: lighting up intracellular phase space”

115 Marine Biology Laboratory, Physiology Course Lecturer, Woods Hole, MA, June 16, 2018, “Self-assembly of Intracellular Matter”

114 NIH High-Risk High Reward Symposium, Bethesda MD, June 6-8, 2018, “The Liquid Nucleolus”

113 EMBO Meeting, Heidelberg, Germany: Cellular Mechanisms Driven by Liquid Phase Separation, May 13, 2018 . Seminar at pre-meeting summit, “Liquid-liquid phase separation in intracellular organization”.

112 New York University, Department of Biology Seminar, April 23, 2018, “Moving through intracellular phase space”

111 Cell Press Webinar on Liquid-liquid phase separation, March. 15, 2018 “RNA/protein liquids: lighting up intracellular phase space”

110 Lehigh University, HHMI Visiting Scholar Seminar, Feb. 15, 2018 “RNA/protein liquids: lighting up intracellular phase space”

109 Columbia University, Biological Sciences seminar, Feb. 7, 2018 “RNA/protein liquids: lighting up intracellular phase space”

108 University of California, Berkeley, Marian E. Koshland student-invited seminar, January 23, 2018, “RNA/protein liquids: lighting up intracellular phase space"

2017

107 Princeton Center for Theoretical Science, Conference on Transitions in Biology, Princeton, NJ December 15, 2017. “Moving through intracellular phase space”

106 ASCB Annual Meeting, Philadelphia, PA, December 2, 2017. “Lighting up nucleoplasmic phase space”

105 Institute for Advanced Study, Princeton, NJ, November 15, 2017. “Fluid states of intracellular matter”

104 27th Solvay Conference on “The physics of living matter: Space, time and information in biology”, Brussels, Belgium, October 19, 2017. Rapporteur talk on “Self-assembly of Intracellular Matter”

103 ASBMB Special Symposium on “Emerging Roles for the Nucleolus”, Stowers Institute for Medical Research, Kansas City, Missouri, Oct. 26-29, 2017, “Liquids, gels, and everything in between: Moving through nucleolar phase space”.

102 Johns Hopkins Department of Biological Chemistry, Keynote speaker at Annual Retreat, September 15, 2017, “Moving Through Intracellular Phase Space”

101 Telluride Science Research Center Workshop on Intrinsically Disordered Proteins, Telluride, Colorado, July 10-15, 2017, “Moving Through Intracellular Phase Space”

100 FASEB Conference on Protein Aggregation in Health and Disease, Steamboat Springs, Colorado, June 11-16, 2017, “Moving Through Intracellular Phase Space”

99 University of California, San Francisco, Biochemistry and Biophysics Departmental Seminar Series, May 23, 2017, “Moving Through Intracellular Phase Space”

98 Rockefeller University, Seminar at the Center for the Studies in Physics and Biology, May 25, 2017, “Moving Through Intracellular Phase Space”

97 California Institute of Technology, Biochemistry and and Molecular Biophysics Seminar series, May 11, 2017, “Moving Through Intracellular Phase Space”

96 Symposium on “Intracellular Phase Transitions and Macromolecular Assemblies”, VIB Vesalius Research Center, Leuven, Belgium, May 2-5, 2017, “Moving Through Intracellular Phase Space”

95 University of Pennsylvania, Department of Biochemistry and Biophysics, April 25, 2017, “Moving Through Intracellular Phase Space”

94 Symposium on “Aqueous Cytomimetic Materials”, Materials Research Society (MRS) Spring Meeting, Phoenix, Arizona, April 17-21, 2017, “Moving Through Intracellular Phase Space”

93 American Chemical Society (ACS) Annual Meeting, Symposium on “Coacervation physics, chemistry, and biology”, San Francisco, April 2-6, 2017, “Moving Through Intracellular Phase Space”

92 New England Biolabs, Company Seminar Series, Ipswich, MA, March 16, 2017, “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

91 Massachusetts Institute of Technology, Department of Chemical and Biological Engineering Seminar, March 24, 2017, “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

90 Harvard Medical School, Department of Biological Chemistry and Molecular Pharmacology seminar, Feb. 2, 2017, “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

89 Distinguished Lecturer in Cell Biology Seminar Series, Cell and Physiology Center of the NIH (NHLBI), Jan. 5, 2017, “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

2016

88 Symposium at Max Planck Institute for Biochemistry, Martinsreid/Munich, Germany, November 28, 2016, “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

87 University of Massachusetts Medical School, Department of Biochemistry and Molecular Pharmacology seminar, November 16, 2016, “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

86 Symposium at Department of Molecular Life Sciences, University of Zurich, Switzerland, November 7-8, 2016, “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

85 Seminar at Max Delbrueck Center for Molecular Medicine, Berlin, Germany, October 31, 2016, “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

84 Seminar at the Scientific Symposium in honor of the 15th anniversary of the Max Planck Insititute of Molecular Cell Biology and Genetics, Dresden, Germany, October 27-29, 2016, “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

83 Distinguished Guest Seminar Series, Max Planck Institute of Molecular Physiology, Dortmund, Germany, Nov. 3, 2016. “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

82 Harvard University, Department of Systems Biology, “Theory Lunch” talk, October 21, 2015. “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

81 Plenary talk at Annual Dutch Biophysics Meeting, Veldhoven, The Netherlands, October 3-4, 2016. “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

80 School of Chemical & Biomolecular Engineering Seminar, Georgia Tech, Atlanta, GA, Sept. 21, 2016. “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

79 Heraeus Seminar on Cellular Dynamics, Bad Honnef, Germany, Sept. 4-7, 2016. “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

78 EMBL Symposium on Actin, Heidelberg, Germany, Sept. 7-10, 2016. “Nuclear Actin, Gravity, and RNA/Protein Droplets”

77 American Chemical Society (ACS) Annual Meeting, Symposium on “Intrinsically Disordered Proteins: Structure, Function, and Interactions”, Philadelphia, PA August 21-25, 2016. “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

76 30th Annual Symposium of The Protein Society, July 16-19, 2016, Baltimore, MD. “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

75 MIT, Department of Physics, Biophysics Seminar, May 11, 2016. “Measuring the Intracellular Dew Point”

74 Cornell University, Department of Chemical and Biomolecular Engineering Seminar, April 25, 2015, “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

73 Meeting on “The Physical Basis of Cellular Adaptation and Memory”, McGill research institute, Barbados, April 15-22, 2015. “Measuring the Intracellular Dew Point”

72 University of Wyoming, Department of Molecular Biology Seminar, April 1, 2015, “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

71 University of Chicago, Department of Molecular Genetics and Cell Biology, Student-Invited Seminar Series, March 17, 2015, “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

70 Carnegie Mellon University, Department of Biomedical Engineering Seminar, Feb. 23, 2016, “Measuring the Intracellular Dew Point: Phase Transitions in Cells”

69 Instituto Gulbenkian de Ciencia, Institute Seminar, Oeiras, Portugal, Feb. 12, 2016, “Measuring the Intracellular Dew Point: The physics and Biology of Membraneless Organelles”

68 16th Mid-Atlantic Soft Matter Workshop, held at National Institutes of Health, Jan. 29, 2016, "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

67 Symposium organized by Japanese Society for Quantitative Biology, National Institute of Genetics, Mishima, Japan, Jan. 13, 2016. "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

66 Symposium organized by Japanese Society for Quantitative Biology, University of Tokyo, Japan, Jan. 10, 2016. "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

2015

65 University of Montreal, Canada, Department of Biochemistry Seminar, December 7, 2015, "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

64 Stanford University, Center for Systems Biology Symposium on Quantitative Biology, December 4, 2015, "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

63 Alzforum webinar: Fluid Business: Could "Liquid" Protein Herald Neurodegeneration?, October 30, 2015, "Intracellular Phase Transitions: From Organelle Function to Disease". http://www.alzforum.org/webinars/fluid-business-could-liquid-protein-herald-neurodegeneration

62 National University of Singapore, Department of Biological Sciences (Departmental Seminar + 2 Lectures), November 2-5, 2015, "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

61 University of Chicago, International Symposium on Multivalent Interactions in Polyelectrolytes: New Physics, Biology and Materials, October 2-4, 2015, "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

60 BIOMS-EMBL, Physics of Cells and Tissues, Sept 30-Oct 2, 2015, Heidelberg, Germany, "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

59 Departmental Seminar, University of Toronto/Hospital for Sick Children, Toronto, Canada, October 26, 2015, "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

58 Center for Biological Systems Engineering, Washington University in St. Louis, October 20, 2015, "Intracellular Phase Transitions: The Physics and Biology of Membrane-less Organelles"

57 New York University, Department of Physics Colloquium, September 17, 2105, "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

56 UMass Amherst, Joint Seminar: Departments of Chemical Engineering and Physics, September 8, 2015, "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

55 Department of Biomedical Engineering, University of Texas Austin, September 3, 2015, "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

54 CECAM Workshop on Intrinsically Disordered Proteins, August 18-21, 2015, Zurich, Switzerland, "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

53 NSF International Physics of Living Systems (iPoLS) meeting, July 21, 2015, Arlington, VA, "Measuring the Intracellular Dew Point: Phase Transitions in Cells"

52 Gordon Research Conference on Developmental Biology, Mount Holyoke College, South Hadley MA, June 21-26, 2015, "Developmental Size Regulation, Drop by Drop"

51 EMBO Workshop on "Macromolecular Assemblies at the Crossroads of Stress and Function", May 31-June 4, 2015, Jerusalem, "Cell Size Dependent RNA/Protein Phase Transitions"

50 Rutgers University, Department of Biomedical Engineering Seminar, April 6, 2015, "Intracellular Phase Transitions and Cell Growth Control"

49 Searle Scholars Program, Annual Meeting, Chicago IL, April 13-15, 2015,"RNA/Protein Phase Transitions and Cell Size"

48 Engineering and Physical Biology Symposium, Harvard University, April 25, 2015 "Cell Size Dependent RNA/Protein Phase Transitions"

47 University of California, San Diego, Division of Biological Sciences and CMM Seminar, March 18, 2015. "RNA/Protein Phase Transitions and Cell Size"

46 Cold Spring Harbor, Meeting on "Cellular Dynamics and Models", March 3-5, 2015. "RNA/Protein Phase Transitions and Cell Size"

45 Penn State, Department of Chemistry Seminar, Feb. 17, 2015, "Intracellular Phase Transitions and Cell Size"

44 9th Annual Intrinsically Disordered Proteins Subgroup Symposium, Biophysical Society Annual Meeting, February 7, 2015, Baltimore, MD, "Space and Time in Intracellular IDP-mediated phase transitions".

43 Danny Thomas Lecture, St. Jude Children's Research Hospital, Memphis TN, January 30, 2015, "Intracellular Phase Transitions and Cell Size"

42 Georgetown University, Department of Physics Colloquium, Jan. 20, 2015, "RNA/Protein Phase Transitions and Cell Size"

2014

41 American Society for Cell Biology Annual Meeting, Special Interest Subgroup – Building the Cell

40 MBL REU Program, Invite a Scientist Lecture Series, *"Do what you love (and if it's fishing…use a big hook)"*, Woods Hole MA, July 15, 2014

39 Cytoskeleton and Cell Division seminar series at the Marine Biological Lab, Woods Hole, MA, July 1, 2014, "RNA/Protein Phase Transitions and Cell Size"

38 15th International Xenopus Conference, Pacific Grove, CA, August 2014. "Intracellular RNP Droplets: Cell Size, Nuclear Actin, and Gravity"

37 Imperial College, London, UK, Departmental of Bioengineering Colloquium, October 2014. "RNA/ Protein Phase Transitions and Cell Size"

36 Physics of Living Matter Symposium (PLM9), Cambridge, UK, September 2014. "RNA/Protein Phase Transitions and Cell Size"

35 7th World Congress of Biomechanics, Boston, MA July 2014. "Mechanics of Intracellular RNA/Protein Emulsions"

34 Gordon Research Conference on Intrinsically Disordered Proteins, Stonehill College, Easton MA, July 2014. "Phase Transitions of Intracellular RNA/Protein Bodies"

33 University of California-San Francisco, CCB/iPQB Seminar Series, May, 2014. "Intracellular Phase Transitions and Cell Size"

32 Annual Meeting of the American Physical Society, Focus Session on "Phase Transitions and Criticality in Cells", March 2014. "Finite Size Effects in Intracellular Phase Transitions"

31 University of Pennsylvania, Departmental Seminar, Chemical and Biomolecular Engineering, March 2014. "Intracellular Phase Transitions, Nuclear Actin, and Gravity"

30 Stanford University, Frontiers in Quantitative Biology Seminar Series, January, 2014. "Intracellular Phase Transitions, Nuclear Actin, and Gravity"

2013

29 Northeast Complex Fluids and Soft Matter Workshop, Rutgers University, October 25, 2013. "RNA/ Protein Droplets, Nuclear Actin, and Gravity".

28 University of Illinois, Urbana-Champaign, Meeting on RNA, Cells and Gravity, October 19, 2013. "Intracellular Phase Transitions, Nuclear Actin, Gravity".

27 University of Goettingen, Germany, Physics of the Embryo Meeting, September 29, 2013. "Intracellular Phase Transitions, Nuclear Actin, and Gravity"

26 Dartmouth University, Biochemistry Department Seminar, September 2013. "Nuclear Actin, RNA Droplets, and Gravity"

25 Gordon Research Conference on Soft Matter, Colby-Sawyer College, NH, August 2013. "Cytoplasmic Phase Transitions, Gravity, and Cell Size"

24 University of Connecticut Health Center, Department of Cell Analysis and Modeling, April 11, 2013, "RNA Droplets, Big Cells, and Gravity"

23 DARPA-DSRC Synthetic Organelle Workshop, Arlington VA, April 4, 2013, "Organelle Engineering: Scaffolds, drops, and cytoplasmic phase transitions".

22 Annual Meeting of the American Physical Society, March 2013, "Nonequilibrium stabilization of an RNA/protein droplet emulsion by nuclear actin".

21 Annual Meeting of the Biophysical Society, February 2013, "Gravitational stabilization of an RNA/ protein emulsion by nuclear actin"

20 Princeton Origin of Life (POoL) Meeting, January 22 2013. "Active RNA droplets: Intracellular and Protocellular Assembly"

2012

19 Annual Meeting of the American Society of Cell Biology, December 2012, "Assembling liquid droplets of RNA and protein"

18 Department of Chemical and Biomolecular Engineering, University of Tennessee-Knoxville, September 4 2012, "Liquid phase RNA/protein droplets in growing cells"

17 Defense Science Research Council (DSRC) Meeting, Santa Cruz, August 27, 2012, "Organism Self-Assembly, Drop by drop".

16 International conference on molecular crowding, Monte Verita, Switzerland, June 2012, "Liquid RNA/ protein droplets in growing cells"

15 Queens College Biology Department Colloquium, May 2012, "Building an embryo, drop by drop"

14 McGill University, Molecular Seminar Series, Montreal, Canada, January 2012 "Building an embryo, drop by drop"

2011

13 University of Chicago, Institute for Biophysical Dynamics, November 2011 "Building an embryo, drop by drop"

12 Johns Hopkins University, Department of Molecular Biology & Genetics, November 2011 “Building an embryo, drop by drop”

11 University of Illinois – Urbana Champaign, Center for Physics of Living Cells, November 2011 “Building an embryo, drop by drop”

10 Harvard University, Conference on Soft Matter & Innovation, “Building an embryo, drop by drop”, October 9, 2011

9 Princeton University, Developmental Colloquium, “Building an embryo, drop by drop”, April 22, 2011

Pre-2011

8 AMOLF Institute Colloquium, “Phase Transitions and Cytoplasmic Self-Assembly”, Amsterdam, The Netherlands, June 2010

7 German Physical Society, Symposium on 'Slow Anomalous Transport in Heterogeneous Media: From porous materials to cellular crowding', “Phase Transitions, liquid micro-compartments, and embryonic patterning”, Regensburg, Germany, March 2010.

6 California Institute of Technology, “Phase Transitions and Cytoplasmic Self-Assembly”, March 2010

5 Cornell University, “Phase Transitions and Cytoplasmic Self-Assembly”, February 2010

4 New England Biolabs Inc., “Phase Transitions and Cytoplasmic Self-Assembly”, Ipswich, MA, January 2010

3 Princeton University, “Phase Transitions and Self-Assembly in the Cytoplasm of Living Cells”, January 2010

2 Yale University, Physical & Engineering Biology Colloquium, “Liquid-Liquid Phase Transitions and the Self-Assembly of Cytoplasmic Microcompartments”, November, 2009

1 American Physical Society, Annual Meeting, Symposium on Complex and Active Biomaterials: Mechanics and Microrheology, “Microtubule Bending Fluctuations and Structural Reinforcement in Cells”, New Orleans, LA, March 2008