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Department of Molecular Biology & Lewis-Sigler Institute for Integrative Genomics
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EDUCATION

| | | | |
|------------------------------------|---------|-------|------|
| California Institute of Technology | Physics | B.S. | 1984 |
| Cornell University | Physics | M.S. | 1988 |
| Cornell University | Physics | Ph.D. | 1989 |

PROFESSIONAL EMPLOYMENT

9/84 – 5/89 Fannie and John Hertz Foundation Fellow, Lab of Atomic and Solid State Physics, Cornell University

5/89 – 9/89 Visiting Scientist, Weizmann Institute of Science, Israel

9/89 – 9/91 Postdoctoral Associate, Physics Department, MIT

9/91 – 3/99 Research Scientist, Physical Sciences Division, NEC Research Institute

4/99 – 10/02 Senior Research Scientist, Physical Sciences Division, NEC Research Institute

8/99 – 5/00 Sabbatical Visitor, University of California, Berkeley

11/02 – 1/04 Senior Research Staff Member, NEC Laboratories America, Inc.

2/04 – Present Professor, Department of Molecular Biology, Princeton University

10/06 – Present Associated Faculty, Department of Physics, Princeton University

8/07 – 8/17 General Member, Aspen Center for Physics

5/08 – Present Member, Lewis-Sigler Institute, Princeton University

7/11 – 6/18 Associate Director, Lewis-Sigler Institute, Princeton University

1/13 – 7/15 Acting Director, Lewis-Sigler Institute, Princeton University

7/16 – Present Faculty Fellow, Princeton Center for Theoretical Science

2/17 – 6/19 Member, KITP Advisory Board

7/19 – Present Associate Director, Princeton Center for Theoretical Science

8/20 – Present Director of Graduate Studies, QCB Graduate Program

7/21 – 6/22 Acting Director, Princeton Center for Theoretical Science

HONORS

Academic:

California Institute of Technology (1980-1984)

Presidential Scholar (1980)

Carnation Merit Scholarship (1982-1983)

Caltech Merit Scholarship (1983-1984)

Jack E. Froehlich Memorial Award (1983)

McKinney Prize in Literature (1984)

Cornell University (1984-1989)

Fannie and John Hertz Foundation Fellowship (1984-1989)

Princeton University (2004-Present)

President's Award for Distinguished Teaching (2019)

Professional:

Fellow of the American Physical Society

Fellow of the American Association for the Advancement of Science (AAAS)

PATENTS

U.S. Patent No. 5,963,571, October 5, 1999, "Quantum-Dot Cascade Laser, Ned S. Wingreen

U.S. Patent No. 5,699,215, December 16, 1997, "Non-Magnetic Magnetoresistive Reading Head Using Corbino Structure," Stuart A. Solin, Ned S. Wingreen

U.S. Patent No. 5,692,003, November 25, 1997, "Quantum-Dot Cascade Laser," Ned S. Wingreen, Charles A. Stafford

U.S. Patent No. 7,405,050, July 29, 2008, "Small RNAs and Bacterial Strains Involved in Quorum Sensing," Derrick H. Lenz, Kenny C. Mok, Ned S. Wingreen, Bonnie L. Bassler

PUBLICATIONS

245. Gupta M, Johnson ANT, Cruz ER, Costa EJ, Guest RL, Li SH, Hart EM, Nguyen T, Stadlmeier M, Bratton BP, Silhavy TJ, Wingreen NS, Gitai Z, Wühr M, **Global protein turnover quantification in Escherichia coli reveals cytoplasmic recycling under nitrogen limitation**, *Nature Communications*. 2024 Jul 13;15(1):5890. doi: 10.1038/s41467-024-49920-8. PMID: 39003262; PMCID: PMC11246515.
244. Rana U, Wingreen NS, Brangwynne CP, Panagiotopoulos AZ, **Interfacial exchange dynamics of biomolecular condensates are highly sensitive to client interactions**, *The Journal of Chemical Physics*. 2024 Apr 14;160(14):145102. doi: 10.1063/5.0188461. PMID: 38591689; PMCID: PMC11006425.
243. Dahan Y, Wingreen NS, Meir Y, **The value of information gathering in phage-bacteria warfare**, *Proceedings of the National Academy of Sciences USA Nexus*. 2024 Jan 9;3(1):pgad431. doi: 10.1093/pnasnexus/pgad431. PMID: 38196923; PMCID: PMC10776245.
242. Kimchi O, Meir Y, Wingreen NS, **Lytic and temperate phage naturally coexist in a dynamic population model**, *ISME Journal*. 2024 Jan 8;18(1):wrae093. doi: 10.1093/ismejo/wrae093. PMID: 38818736; PMCID: PMC11187991.
241. GrandPre T, Zhang Y, Pyo AGT, Weiner B, Li J, Jonikas MC, and Wingreen NS, **Impact of Linker Length on Biomolecular Condensate Formation**, *PRX Life* 2023;1, 023013.

240. Wang B, Lin AE, Yuan J, Novak KE, Koch MD, Wingreen NS, Adamson B, Gitai Z, **Single-cell massively-parallel multiplexed microbial sequencing (M3-seq) identifies rare bacterial populations and profiles phage infection**, *Nature Microbiology*. 2023 Oct;8(10):1846-1862. doi: 10.1038/s41564-023-01462-3. Epub 2023 Aug 31. PMID: 37653008; PMCID: PMC10522482.
239. Hallatschek O, Datta SS, Drescher K, Dunkel J, Elgeti J, Waclaw B, Wingreen NS, **Proliferating active matter**, *Nature Reviews Physics*. 2023 May 31:1-13. doi: 10.1038/s42254-023-00593-0. PMID: 37360681; PMCID: PMC10230499.
238. Pyo AGT, Zhang Y, Wingreen NS, **Proximity to criticality predicts surface properties of biomolecular condensates**, *Proceedings of the National Academy of Sciences USA*. 2023 Jun 6;120(23):e2220014120. doi: 10.1073/pnas.2220014120. PMID: 37252985; PMCID: PMC10266063.
237. Lee DSW, Choi CH, Sanders DW, Beckers L, Riback JA, Brangwynne CP, Wingreen NS, **Size distributions of intracellular condensates reflect competition between coalescence and nucleation**, *Nature Physics*. 2023;19(4):586-596. doi: 10.1038/s41567-022-01917-0. PMID: 37073403; PMCID: PMC10104779.
236. He G, GrandPre T, Wilson H, Zhang Y, Jonikas MC, Wingreen NS, Wang Q, **Phase-separating pyrenoid proteins form complexes in the dilute phase**, *Communications Biology*. 2023 Jan 7;6(1):19. doi: 10.1038/s42003-022-04373-x. PMID: 36611062; PMCID: PMC9825591.
235. Martínez-Calvo A, Bhattacharjee T, Bay RK, Luu HN, Hancock AM, Wingreen NS, Datta SS, **Morphological instability and roughening of growing 3D bacterial colonies**, *Proceedings of the National Academy of Sciences USA*. 2022 Oct 25;119(43):e2208019119. doi: 10.1073/pnas.2208019119. PMID: 36256809; PMCID: PMC9618147.
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Curr Biol. 2022 Oct 10;32(19):4186-4200.e8. doi: 10.1016/j.cub.2022.08.014. Epub 2022 Aug 29. PMID: 36041438; PMCID: PMC9730832.
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- Nucleic Acids Research* Jan 17:gkab1290. doi: 10.1093/nar/gkab1290. Online ahead of print. PMID: 35037068 (2022)
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Molecular Cell Sep 16;81(18):3775-3785. doi:10.1016/j.molcel.2021.08.030.
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Journal of the Royal Society Interface Jun;18(179):20210175. doi:
10.1098/rsif.2021.0175. Epub 2021 Jun 16.PMID: 34129793 (2021)
217. Landajuela A, Braun M, Rodrigues CDA, Martínez-Calvo A, Doan T, Horenkamp F,
Andronicos A, Shteyn V, Williams ND, Lin C, Wingreen NS, Rudner DZ, Karatekin E,
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Nature Physics 17, 531-538 <https://doi.org/10.1038/s41567-020-01125-8> Jan 11 (2021)
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PLoS Computational Biology. Aug 28;16(8):e1008156. doi: 10.1371/journal.pcbi.1008156. eCollection 2020 Aug. PMID: 32857772 (2020)
202. Saad-Roy CM, Arinaminpathy N, Wingreen NS, Levin SA, Akey JM, Grenfell BT,
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PLoS Computational Biology. 2020 Jun 25;16(6):e1007892. doi: 10.1371/journal.pcbi.1007892. eCollection Jun. PMID: 32584807 (2020)
201. Tareen A, Wingreen NS, Mukhopadhyay R,
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Scientific Reports. Jun 23;10(1):10131. doi: 10.1038/s41598-020-66699-y. PMID: 32576941 (2020)
200. Qin B, Fei C, Bridges AA, Mashruwala AA, Stone HA, Wingreen NS, Bassler BL,
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Science 11 Jun: eabb8501 DOI: 10.1126/science.abb8501(2020)

199. Fei C, Mao S, Yan J, Alert R, Stone HA, Bassler BL, Wingreen NS, Košmrlj A, **Nonuniform growth and surface friction determine bacterial biofilm morphology on soft substrates,**
Proceedings of the National Academy of Sciences U.S.A. Mar 19. pii: 201919607. doi: 10.1073/pnas.1919607117. (2020)
198. Saad-Roy CM, Wingreen NS, Levin SA, Grenfell BT, **Dynamics in a simple evolutionary-epidemiological model for the evolution of an initial asymptomatic infection stage,**
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197. Xu B, He G, Weiner BG, Ronceray P, Meir Y, Jonikas MC, Wingreen NS, **Rigidity enhances a magic-number effect in polymer phase separation,**
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195. Rath S, Prangley E, Donovan J, Demarest K, Wingreen NS, Meir Y, Korennykh A, **Concerted 2-5a-mediated mrna decay and transcription reprogram protein synthesis in the dsrna response,**
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194. Wang SW, Bitbol AF, Wingreen NS, **Revealing evolutionary constraints on proteins through sequence analysis,**
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192. Yan J, Fei C, Mao S, Moreau A, Wingreen NS, Košmrlj A, Stone HA, Bassler BL, **Mechanical instability and interfacial energy drive biofilm morphogenesis,**
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Bassler BL,
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 23. Antti-Pekka Jauho, Ned S. Wingreen, Yigal Meir,
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S. J. Wind,
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magnetoconductance,**
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conductance oscillations,**
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4. Ned S. Wingreen, Monique Combescot,
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3. Ned S. Wingreen, Monique Combescot,
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Physical Review Letters **57**: pp. 1084-1087 (1986).

TRAINEES

Postdoctoral Fellows

| | |
|--------------------------|---------------------------------|
| Noam Sivan | May 1992 – August 1993 |
| Alan Middleton | September 1992 – December 1994 |
| Hao Li | September 1994 – August 1997 |
| Igor Aleiner | September 1997 – March 1998 |
| Eugene Tsiper | July 1997 – September 1997 |
| Jonathan Miller | August 1998 – September 2001 |
| Eldon Emberly | August 2000 – September 2002 |
| Ranjan Mukhopadhyay | September 2001 – August 2003 |
| David Moroz | July 2001 – July 2002 |
| Rahul Kulkarni | August 2002 – July 2004 |
| Peter Thumfort | November 2002 – November 2005 |
| Je-Luen Li | February 2003 – March 2005 |
| Juan Keymer | March 2003 – December 2005 |
| Morten Kloster | September 2003 – October 2005 |
| Robert Endres | October 2004 – August 2007 |
| Kerwyn Huang | August 2004 – August 2008 |
| Pankaj Mehta | September 2006 – July 2010 |
| Thierry Mora | September 2007 – August 2010 |
| Konstantin Doubrovinski | November 2008 – September 2012 |
| Sven van Teeffelen | July 2009 – December 2013 |
| David Schwab | September 2009 – August 2014 |
| Knut Drescher | February 2010 – August 2014 |
| Michele Castellana | November 2011 – August 2015 |
| Thibaud Taillefumier | November 2011 – August 2016 |
| Anne-Florence Bitbol | September 2012 – January 2016 |
| Jing Yan | October 2014 – June 2019 |
| Anna Posfai | November 2014 – February 2018 |
| David Borenstein | May 2015 – March 2016 |
| Matthew Jemielita | September 2015 – August 2021 |
| Amir Erez | September 2017 – September 2020 |
| Yaojun Zhang | September 2018 – December 2021 |
| Zhiyuan Li | September 2018 – August 2019 |
| Alejandro Martinez-Calvo | January 2021 – present |
| Julia Steinberg | March 2021 – September 2021 |
| Carolina Trenado-Yuste | September 2021 – present |
| Ofer Kimchi | September 2021 – present |
| Trevor GrandPre | September 2021 – present |
| Linnea Lemma | September 2021 – present |
| Daniel Lee | October 2021 – March 2022 |
| Jonathan Yuly | March 2022 – present |
| Chenyi Fei | August 2022 – February 2023 |

Colin Scheibner
François Bourassa

August 2023 – present
September 2024 – present

Graduate Students

| | |
|-----------------------------|--|
| Robert Helling | June 1995 – September 1995 |
| Tairan Wang | June 1996 – September 1997 |
| Dmitry Green | June 2000 – March 2001 |
| Mehdi Yahyanejad | June 2001 – September 2002 |
| Kerwyn Huang | June 2002 – August 2004 |
| Forrest Coleman | 3 rd rotation 2003-2004 |
| Jonathan Guberman | 3 rd rotation 2003-2004, June 2004 – 2010 |
| Tao Long | September 2004 – December 2009 |
| Sidhartha Goyal | March 2005 – August 2009 |
| John Rittenhouse | 1 st rotation 2005-2006 |
| Nikolai Slavov | 3 rd rotation 2005-2006 |
| Christopher Doucette | 1 st rotation 2006-2007 |
| Robert Cooper | 2 nd rotation 2006-2007, June 2007 – October 2012 |
| Jack Lee | 1 st rotation 2007-2008 |
| Marshall Reaves | 3 rd rotation 2007-2008 |
| Steven Wang | May 2008 – August 2011 |
| Doug Swanson | September 2009 – June 2011 |
| Lihui Feng | 4 th rotation 2010, September 2010 – December 2014 |
| Max Wilson | 1 st rotation 2010-11 |
| David Borenstein | May 2011 – May 2015 |
| Vikram Kumar | 2 nd rotation 2012-2013, June 2013 – September 2015 |
| Elizabeth Rowland | 1 st rotation 2013-14 |
| Sophie Zhang | February 2014 – June 2015 |
| Farzan Beroz | February 2014 – June 2018 |
| Bin Xu | June 2015 – June 2018 |
| Olivia Chu | 1 st rotation 2015-16 |
| Riley Skeen-Gaar | 2 nd rotation 2015-16 |
| Whitney Warren | 2 nd rotation 2015-16 |
| Zhidong Zhang | 2 nd rotation 2015-16 |
| Jared Balaich | 3 rd rotation 2015-16 |
| Siddhartha Jena | 1 st rotation 2016-17 |
| Daniel Lee | 1 st rotation 2016-17, June 2017 – October 2021 |
| Nishant Pappireddi | 1 st rotation 2016-17 |
| Cassidy Yang | 2 nd rotation 2016-17 |
| Ben Weiner | February 2017 – May 2021 |
| Guanhua He | June 2017 – August 2022 |
| Jaime Lopez | 1 st rotation 2017-18, March 2018 – May 2022 |
| Chadi Saad-Roy | 1 st rotation 2017-18, March 2018 – June 2022 |
| Chenyi Fei | 2 nd rotation 2017-18, March 2018 – July 2022 |
| David Denberg | 2 nd rotation 2018-19 |
| Bruce Wang | 3 rd rotation 2019-20, March 2020 – present |
| Andrew Pyo | 1 st rotation 2020-21, September 2020 - present |
| Sebastian Gonzalez La Corte | 1 st rotation 2020-21, March 2021 – present |

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|-----------------------|--|
| Pablo Oyler-Castrillo | 2 nd rotation 2020-21 |
| Kimberly Sabsay | 3 rd rotation 2020-21, March 2021 – present |
| Ziyang Chen | 2 nd rotation 2021-22, March 2022 – present |
| Qiwei Yu | 2 nd and 3 rd rotation 2021-22, March 2022 – present |
| Olenka Jain | 2 nd rotation 2021-22 |
| Jiayi Zhang | 2 nd rotation 2022-2023 |
| Sohit Miglani | 2 nd rotation 2022-2023, March 2023 – present |
| Lawrence Abad | 1 st rotation 2023-2024, April 2024 – present |
| Changyuan Wang | 1 st rotation 2023-2024 |
| Abir George | 2 nd rotation 2023-2024, February 2024 – present |
| Anurag Pendse | 1 st rotation 2024-2025 |
| Finn Braaten | 1 st rotation 2024-2025 |

Undergraduate Students

| | |
|------------------------|---|
| Philip Kidd | June 2004 – August 2006 |
| Lenny Shulgin | February 2007 – May 2007 |
| Clinton Hansen | September 2006 – May 2008 |
| Howard Yu | September 2007 – May 2008 |
| Leon Furchtgott | February 2008 – May 2009 |
| Evgeni (Genya) Frenkel | February 2009 – May 2010 |
| Michael Gelbart | June 2009 – May 2010 |
| Michael Salazar | February 2010 – August 2010 |
| Edvin Memet | February 2011 – August 2012 |
| Jose Mena | May 2011 – May 2012 |
| Ken Jean-Baptiste | February 2014 – May 2015 |
| Annie Maslan | September 2014 – May 2015 |
| Rosie Zhang | September 2014 – May 2015 |
| Daniel Greenidge | June 2015 – August 2015 |
| Ofer Kimchi | June 2015 – May 2016 |
| Andrew Sharo | September 2015 – May 2016 |
| Avaneesh Narla | February 2016 – June 2017 |
| Iris Rukshin | June 2016 – August 2016 |
| Chris King | September 2016 – June 2017 |
| Chris Russo | June 2017 – August 2017, January 2020 – August 2020 |
| Tanya Tafolla | June 2017 – August 2017 |
| Andy Liu | September 2018 – May 2019 |
| John McEnany | April 2018 – December 2021 |
| Janelle Nelson | June 2018 – August 2018 |
| Bo Liu | June 2018 – January 2020 |
| Jonathan Kutasov | September 2018 – January 2020 |
| George Georges | September 2018 – May 2019 |
| Yusha Sun | February 2019 – May 2019 |
| Katherine Shelburne | June 2019 – September 2019 |
| Yechen Hu | February 2020 – May 2021 |
| Conor Wilson | February 2020 – May 2021 |

| | |
|---------------|----------------------------|
| Chris Russo | January 2020 – August 2020 |
| Mary Davis | February 2021 – May 2022 |
| Angela Zhou | February 2022 – present |
| Meryl Liu | May 2022 – present |
| Sophie Leheny | December 2023 – present |
| Sokol Hoxha | April 2024 – present |