

Curriculum Vitae

Mark C. Williams

<http://nuweb.neu.edu/mark>

@WilliamsLabNEU

Professor and Chair

Northeastern University Department of Physics

Associate Director, Center for Interdisciplinary Research on Complex Systems

111 Dana Research Center

Boston, MA 02115

Education

University of Minnesota, Minneapolis, MN

Ph.D. in Physics August 1998, GPA 3.89 Thesis advisors: J. W. Halley and C. F. Giese Thesis: "Creation and Detection of Low Temperature Helium Atom Beams and Suspension of Superfluid Helium for the Study of Bose-Einstein Condensation in Superfluid Helium"

Macalester College, Saint Paul, MN

BA in Physics and German May 1992, GPA 3.88

Graduated Magna Cum Laude, Honors in Physics. Thesis advisor: R. T. Brundage

Honors thesis title: "Radiative and non-radiative decay rates of americium and curium in fluorozirconate glass"

Scientific Employment

2017-present Chair, Department of Physics, Northeastern University

2010-present Professor of Physics, Northeastern University

2010-2017 Graduate Director, Department of Physics, Northeastern University

2007-2010 Associate Professor of Physics, Northeastern University

2001-2007 Assistant Professor of Physics, Northeastern University

1999-2001 Postdoctoral Research Associate, University of Minnesota

Research Advisor: Prof. Victor Bloomfield, Department of Biochemistry, Molecular Biology, and Biophysics

1998-1999 Postdoctoral Research Associate, University of Minnesota

Research Advisors: Prof. Victor Bloomfield, Department of Biochemistry, Molecular Biology, and Biophysics and Prof. Matthew Tirrell, Department of Chemical Engineering and Materials Science

Honors and Fellowships

Fellow, American Physical Society, Elected 2012

Editorial Board Member, Nucleic Acids Research, 2011-present

Regular Member, NIH Macromolecular Structure and Function C (MSFC) study section, 2011-2017

National Science Foundation CAREER Award, 2003

Research Corporation *Research Innovation Award*, 2003

University of Minnesota Doctoral Dissertation Fellow, 1996-1997

NASA Graduate Student Researchers Program Fellow, 1993-1996

Phi Beta Kappa, 1992

Pi Mu Epsilon, 1992 (Mathematics Honor Society)

Delta Phi Alpha, 1992 (German Honor Society)

National Honor Society, 1988

Professional Memberships

American Physical Society
Biophysical Society
Optical Society of America

Research and Scholarship

Research Grants

National Institutes of Health R01 Grant (Williams, MC, PI)
“Single Molecule HIV-1 NC/Gag-DNA Interactions”
GM072462, 08/01/2004 - 03/31/2019, \$3,900,000

National Science Foundation Research Grant (Williams, MC, PI)
“Quantifying Single Molecule DNA-ligand Interactions”
MCB-1243883, 3/1/2013-2/28/2018, \$950,000

National Institutes of Health R01 Grant (Maher, LJ III, PI)
“Enhancement of cellular DNA flexibility”
Subcontract to GM075965 (subcontract PI, Williams, MC)
9/25/2006 - 8/31/2019, \$1,320,000 to Northeastern

National Science Foundation Research Grant (Williams, MC, PI)
“Quantifying Single Molecule DNA-ligand Interactions”
MCB- 0744456, 3/1/2008-2/28/2013, \$710,000

National Science Foundation CAREER Award (Williams, MC, PI)
“DNA Binding Ligands and the Helix-Coil Transition of Single DNA Molecules”
MCB-0238190, 1/15/2003-12/31/2007, \$568,000

American Chemical Society Petroleum Research Fund Grant (Williams, MC, PI)
“DNA binding drugs and the helix-coil transition of single DNA molecules”
PRF # 39448-G4, 5/1/2003-8/31/2005, \$35,000

Research Corporation Research Innovation Award (Williams, MC, PI)
“Single molecule force spectroscopy studies of RNA-protein interactions”
RI0950, 5/15/2003, \$35,000

Publications

[Google Scholar Profile](#)

Teaching and Advising

Doctoral Candidates Supervised

1. Kiran Pant, PhD 2004
2. Margareta Cruceanu, PhD 2005
3. Ioana Daniela Vladescu, PhD 2006
4. Leila Shokri, PhD 2008
5. Fei Wang, PhD 2009
6. Thayaparan Paramanathan, PhD 2010
7. Kathy Chaurasiya, PhD 2013
8. Hao Wu, PhD 2013
9. Jialin Li, PhD 2014
10. Ali Almaqwashi, PhD 2015
11. Ran Huo (joint with Nathan Israeloff), PhD 2016

12. Divakaran Murugesapillai, PhD expected 2017
13. M. Nabuan Nauffer, PhD expected 2018
14. Gudfridur Moller (joined the lab in 2016)

Undergraduate Researchers Supervised

1. Andrew Pickering, Spring 2004
2. Aleksandra Mihailović, Summer 2005
3. Moatez Eldib, Summer 2006
4. Meriem Bahira, Undergraduate Co-op Student, 2011-2012, 2013-2014
5. Susie Nimitpattana, Undergraduate Co-op Student, 2012-2013
6. Sean Malley, Undergraduate Co-op Student, 2012-2013
7. Clarissa Ruslie, Undergraduate Co-op Student, 2011-2012
8. Catherine A. Dietrich, 2012-13
9. Caitlin J. Cain, 2014
10. Andrew Clark, Undergraduate Co-op student, 2014-2016
11. Nicholas Bryden, summer 2016
12. Leah Furman, 2016
13. Liam Price, Undergraduate Co-op student, 2017

Doctoral Thesis Committees

1. Traian Dan Ionascu, Department of Physics, Northeastern University, 2005
2. Abdellah Dakhama, Department of Physics, Northeastern University, 2005
3. Philip Crider, Department of Physics, Northeastern University, 2006
4. Daisuke Sato, Department of Physics, Northeastern University, 2006
5. Milen Raytchev, Departments of Physics and Chemistry, Boston College, 2007
6. Flaviu Gruia, Department of Physics, Northeastern University, 2007
7. Jian Zhang, Department of Physics, Northeastern University, 2007
8. Joost van Mameren, Department of Physics and Astronomy, VU University Amsterdam, 2008
9. Hassan Oukris, Department of Physics, Northeastern University, 2008
10. Gina Escobar, Department of Physics, Northeastern University, 2010
11. Robert Camp, Department of Mechanical and Industrial Engineering, Northeastern University, 2010
12. Peter Gross, Department of Physics and Astronomy, VU University Amsterdam, 2011
13. Christopher Morgan, Department of Chemistry and Chemical Biology, Northeastern University, 2011
14. Jingyun Zhang, Department of Physics, Northeastern University, 2011
15. Niklas Bosaeus, Department of Chemical and Biological Engineering, Chalmers University of Technology, Gothenburg, Sweden, 2013 (Thesis opponent)
16. Zhen Song, Department of Physics, Northeastern University, 2013
17. Joe Larkin, Department of Physics, Northeastern University, 2016
18. Trung Kien Nguyen, Department of Physics, Northeastern University, 2017
19. David Murison, Department of Chemistry and Chemical Biology, 2017
20. Bridget Salna, Department of Physics, Northeastern University, 2017

Service

Service to the scientific community

- Reviewer, National Heart Lung and Blood Institute 2017 Site Review for Division of Intramural Research, Biochemistry and Biophysics Center
- Scientific Committee Member, 10th International Retroviral Nucleocapsid and Assembly Symposium, Montpellier, France, September 18-21, 2016

- Session Chair, Protein-Nucleic Acid Interactions II, Biophysical Society 59th Annual Meeting, Baltimore, MD, February 7-11, 2015.
- Session Chair and Co-Organizer, Symposium in honor of Judith G. Levin on the occasion of her retirement, The Cloisters, National Institutes of Health, Bethesda, MD, November 19, 2014.
- Session Chair, Protein-Nucleic Acid Interactions II, 58th Biophysical Society Annual Meeting, San Francisco, CA, Feb. 15-19, 2014.
- Scientific Committee member, 9th International Retroviral Nucleocapsid Protein and Assembly Symposium, Hotel Omni Mont-Royal, Montreal, Canada, August 25-28, 2013.
- Reviewer, National Heart Lung and Blood Institute 2013 Site Review for Division of Intramural Research, Biochemistry and Biophysics Center
- External Program Reviewer, University of Maine Department of Physics, Fall 2012
- Session Chair, Protein-Nucleic Acid Interactions II, 56th Biophysical Society Annual Meeting, San Diego, CA, Feb. 25-29, 2012.
- Scientific Committee member, 8th International Retroviral NC Symposium, Caixa Forum and Catalonia Plaza Hotel, Barcelona, Spain, September 18-21, 2011.
- Scientific Committee member, 7th International Retroviral NC Symposium, University of Minnesota, Minneapolis, MN Sept. 14-16, 2009.
- Ad hoc member, NIH MSFC Study Section, June 4-5, 2009
- Panelist, Proposal Review Panel for the National Science Foundation Division of Mathematics and Physical Sciences and Division of Molecular and Cellular Biosciences, 2006-2010
- Invited Session Chair, "Biomolecular Machines 2", *Albany 2007: The 15th Conversation*, Albany, NY, June 19-23, 2007
- Panelist, Proposal Review Panel for the National Science Foundation Division of Molecular and Cellular Biosciences, Molecular Biophysics, 2003-2006
- Session Chair, *SoftBio 2006*, a Conference on Statistical Physics, Soft Matter, and Biological Physics, Nordic Institute for Theoretical Physics, Copenhagen, Denmark, May 8-11, 2006
- Panelist, Science and Engineering Proposal Review Panel for the Northeastern University Office of the Provost Research and Scholarship Development Fund, 2006
- Focus Session Organizer and Chair, 2006 March Meeting of the American Physical Society, "Dynamics of nucleic acid-protein interactions: from single molecules to biological systems"
- Panelist, "Lab Management 101", part of the "Getting There and Getting Started" seminar series for PhDs and postdocs, MIT, Cambridge, MA, April 28, 2006
- Panel Judge, Massachusetts Junior Academy of Science Symposium, MIT, Cambridge, MA, October 23, 2005
- Member, American Physical Society Division of Biological Physics Committee to Select APS Fellows, 2005-2006
- Panel Judge and Session Chair, Massachusetts Junior Academy of Science Symposium, MIT, Cambridge, MA, October 9, 2004
- Session Chair, "X-ray, Neutron, SPR, CD, and Emerging Techniques", Second International Conference on Biomedical Spectroscopy, London, 2003
- Session Chair, "Single Molecule Biophysics II", Biophysical Society Annual Meeting 2002
- Anonymous referee for manuscripts submitted to: Applied Physics Letters, Biochemical Society Transactions, Biochemistry, Biochemistry and Cell Biology, Biophysical Journal, Biopolymers, Chemistry and Biology, eLife, EMBO Journal, EMBO Reports, European Physical Journal E, Europhysics Letters, FEBS Letters, FEBS Journal, Journal of the American Chemical Society, Journal of Bacteriology, Journal of Biomechanics, Journal of Chemical Physics, Journal of Molecular Biology, Journal of Optics A: Pure and Applied Optics, Journal of Physical Chemistry, Journal of Physics: Condensed Matter, Journal of Physics and Chemistry of Solids, Journal of Visualized Experiments, Nature, Nature Chemistry, Nature Methods, Nature Nanotechnology, Nature Reviews Molecular Cell Biology, Nucleic Acids Research, Optics Express, Philosophical Transactions of the Royal Society A, Physical Review Letters, Physical Review E, Physical Review X, PLOS ONE, Proceedings of the National Academy of Sciences USA, Science, Scientific Reports, and Virus Research.
- Grant Proposal Reviews: American Chemical Society Petroleum Research Fund, Human Frontiers Science Program, Israel Science Foundation, National Science Foundation, Netherlands Organization for Scientific Research (NWO), and Research Corporation.

Service to the University

Department Service

1. Physics Chair (2017-present)
2. Physics Graduate Committee (2003-2009)
3. Physics Machine Shop Supervisor (2003-2017)
4. Physics Faculty Search Committees (2003-2009, Chair 2010-2011)
5. Colloquium Committee (2002-2005)
6. CIRCS Seminar Committee (2005-present)
7. Physics Graduate Program Director (2010-2017)
8. Faculty Mentor to Meni Wanunu (2011-2017)
9. Faculty Mentor to Bryan Spring (2015-2017)

College Service

1. College Council (2003-2006)
2. Physics Chair Search Committee (2004, 2012)
3. College of Science Graduate Curriculum Committee (2010-present)
4. Activity Insight beta testers committee (2013-2015)
5. Search Committee for COS Graduate Student Services Director (2014 - 2015)

University Service

1. Provost Office Mentoring Taskforce Panel (2002-2006)
2. Panelist, Office of the Provost Research and Scholarship Development Fund (2006)
3. Member, NEASC reaccreditation self-study: Committee for Standard 5: Faculty (2007-2008)
4. Reviewer, Provost Office Outstanding Graduate Student Awards (2011)
5. ADVANCE STRIDE Committee member (2012-2017)
6. ADVANCE Steering Committee member (2015-2017)
7. Reviewer and Panelist, Northeastern University Future Faculty Fellowship Program (2015)
8. Provost Office Tenure and Promotion Committee member (2017)