

Curriculum Vitae

Peter M. Hoffmann

Chair and Professor of Physics and Astronomy
Previous Senior Associate Dean
College of Liberal Arts and Sciences
Wayne State University
Detroit, MI

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Contact Information

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Wayne State University is a comprehensive research institution in Midtown Detroit of 25,000 students, with the largest single campus medical school in the country and a highly diverse body of students (>23% URM). **It is one of the few institutions in the country enjoying both the Carnegie Highest research activity and Carnegie Community Engaged classifications.**

Summary of experience

- Extensive experience in all administrative aspects of higher education:
 - **Research:** Senior Associate Dean of Research; continuously funded researcher; collaboration with Engineering (joint lab), School of Medicine, Pharmacy, Chemistry and Biological Sciences.
 - **Personnel:** Associate Dean, Department Chair, management of promotion and tenure, staff management
 - **Facilities:** College liaison with facilities management; co-author of successful application to fund new STEM Innovation Learning Center (\$35 Million state funding)
 - **Students:** Associate Dean of Undergraduate Affairs, Chair of Department

- **Instruction:** PI of \$3 Million NSF IUSE grant on improving STEM teaching; numerous teaching awards
- **Budgets:** Chair of university budget committee (RCM – revenue and cost); Department chair
- **Fundraising:** Stewardship experience with donors; Worked closely with Donor R. Barber for many years (more than \$1Million donated); Donor visits in Washington DC; Petoskey, Michigan; work closely with Development office as department chair; Initiated regular meetings with foundations relations
- **Diversity and Inclusion:** Headed or was part of all recent successful faculty searches to enhance diversity in physics and astronomy (three women and one URM hired). Instituted diversity committee in physics. Member of chair council of NSF-ADVANCE GEARS (“Gender Equity Advances Retention in STEM”) initiative.

Positions Held

April 2020 – present: Chair of the Department of Physics and Astronomy

- Budget, personnel management, student issues, promotion of department; enrollment management; data-driven decision making; managing impact of COVID and switch to online teaching; Moving all teaching activity to new STEM teaching building; Managing six tenure and promotion cases; Negotiating new hire in astronomy/astrophysics; manage impact of flooding and relocation of researchers
- Continue research activities in bio- and nanoscale physics and materials science; Research at Oak Ridge National Lab and National Institute of Standards and Technology, Gaithersburg, MD

August 2017 – April 2020: Professor of Physics and Astronomy

- On leave from administrative duties (by choice). Research and completion of manuscripts and books, Co-lead of university RCM budget cost and revenue allocation committee. PI on large NSF IUSE grant on STEM teaching reform; Chair of Review Committee of Dean of the Business School per request of the Provost.

August 2016 - August 2017: **Senior Associate Dean** of the College of Liberal Arts and Sciences (CLAS)

- Deputy Dean of the college: represented college in all functions in the absence of the Dean, including faculty hiring, alumni relations, budget issues, representation at Council of Deans, working with the Provost’s office.

August 2015 – August 2017: **Associate Dean of Research**, CLAS

- Responsible for all CLAS research activity across 20 departments with a total external funding portfolio of more than \$16 Million/year.

- Continued development of CLAS research support structure.
- Supervisory role of CLAS research (an associate director and five departmental grant officers), CLAS web-team (an associate director and a webmaster) and IT and science research support (>10 employees).
- Member of committee to create "*Science Innovation Learning Center*", a funded \$50 Million project (\$35 Million state funding). I suggested the accepted name of the project and co-wrote proposal to the State of Michigan. Construction completed in 2020.
- Establishment of *STEM Commons* area – an open area for students, TAs and faculty to meet outside the classroom for office hours, tutoring, peer instructor meetings, informal research and teaching discussions etc.; see: <https://clas.wayne.edu/stemcommons>
- Logistical and intellectual support for interdisciplinary, multi-PI proposal writing, example: Successful NEH graduate training grant involving 5 departments.
- Development of robust, complementary research workshop program for faculty, post-docs and graduate students: grant writing, mock grant panels, communicating research to the public, targeted meetings around research themes.
- Establishment of formal collaboration with School of Medicine.
- Regular meetings with Institutional Review board, Foundation relations, Facilities management, Research compliance and safety, and Vice President for Research.
- Establishment of CLAS research safety committee.
- Establishment of cross-college Research Dean's meetings.
- Co-Lead of cost allocation subcommittee to develop new RCM budgeting system for the university.
- College-level review of invention disclosures.

August 2012-August 2015: **Associate Dean for Academic Programs, CLAS**

- Administrative leader, *Creation of new BS in Public Health*, wrote proposal and guided proposal through all approval stages.
- Support, Creation of BA in Global Studies and in Mathematical Economics.
- Creation of first *CLAS student council*.
- Administrative lead, first *fully online* MS (Criminal Justice) in CLAS.
- Creation of Online Teaching Fellows Program.
- CLAS-wide promotion of undergraduate research (survey, website, workshops for undergraduate researchers, establishment of CLAS undergraduate research fair). See: <https://clas.wayne.edu/ugr>
- Oversight of CLAS IT structure and Website design.
- Leader, Academic Program Reviews in CLAS, including Anthropology, Biology, Chemistry, History, Philosophy, Physics, Psychology, and Sociology.
- *Transformation of STEM teaching* as Co-PI on NSF WIDER "Evaluation of WSU Use of Evidence-Based Methods in STEM Instruction" and NSF-IUSE "WSU - Student Success Through Evidence-based Pedagogies (WSU-SSTEP)", a \$3 Million grant.
- Fundraising and alumni relations – donor visits (Washington DC; Petoskey, MI) and communications (stewardship).

- For the 2005 cohort of entering first-time students, Wayne State's six-year graduation rate was 26%. I was part of the team that worked with the Office of the Provost and other parts of the university to improve student services such as advising (we hired 19 department based advisors in CLAS), the major declaration process, faculty teaching support*, undergraduate research* and other high-impact practices*, program improvements*, and students' ability to better monitor their own progress towards graduation. The six-year graduation rate for the 2011 entering cohort (which was determined in August 2017) was 47%. *This is one of the fastest rates of growth in six-year graduation rates of any university in the country over the last five years.* Please see the recent article in the New York Times:
<https://www.nytimes.com/2018/03/02/opinion/sunday/graduation-rates-wayne-state.html> (*my main areas of contribution)

August 2008 – August 2012: **Founding Director, Biomedical Physics Program, CLAS**

- 2007-2008 Developed *new Biomedical Physics (BMP) major*. Wrote proposal, recruitment flyer, and course proposals. Developed 4 new courses. Guided proposal through approvals (Physics faculty to State of Michigan). Program was approved by Board of Governors February 2008. Served as student advisor/ director for new program until Summer 2012. >50 students have graduated so far, ~60 in program currently.
- 2008 AGRADE (Accelerated graduate education) program for BMP major: Developed first *interdisciplinary, intercollege* AGRADE agreement with Biomedical Engineering, allowing students to receive a BMP BS and a BME MS in just 5 years. So far more than 20 students have taken advantage of this program.
- 2008-2017 Course developments: BMP seminar, Biological Physics, Computational Physics (2 course sequence).
- 2008 Establishment of interdisciplinary undergraduate summer research program.
- 2008-2012 Director and faculty advisor of BMP program.

2011 – present: Professor of Physics and Astronomy, Wayne State University.

2006 – 2011: Associate Professor of Physics and Astronomy, WSU.

2001 – 2006: Assistant Professor of Physics and Astronomy, WSU.

1999 – 2001: Research Fellow, University of Oxford, UK under supervision of Sir John B. Pethica, Professor of Materials.

Education

1994 – 1999: The Johns Hopkins University, Baltimore, MD; **PhD in Materials Science**; Thesis Title: "Surface science at the silicon/solution interface" under supervision of Dr. Peter C. Searson, Joseph R. and Lynn C. Reynolds Professor of Materials Science and Engineering.

1992 – 1994: Southern Illinois University, Carbondale, IL; **MS in Physics**; Thesis Title: "Surface-induced metastability in nanoscale restricted liquids" with Vivak M. Malhotra, Professor of Physics.

1990 – 1992: Technische Universität Clausthal, Germany; Vordiplom (BS equivalent) in Physics and Mathematics (double major).

1988 – 1990: Fernuniversität Hagen, Germany, Mathematics classes while completing national service.

Honors and Awards

2021 Election to Academy of Teachers, Wayne State University

2017 SSTEP (Student Success Through Evidence-based Pedagogies) Fellowship.

2017 Sultana N. Nahar Prize for Distinction in Teaching Physics and Astronomy, Wayne State University/ Department of Physics.

2009 Presidential Excellence in Teaching Award, Wayne State University.

2008 Richard J. Barber Faculty Award, Wayne State University/ Department of Physics.

2007 Career Development Chair Award, Wayne State University.

2007 Adjunct Professorship of Materials Science, Department of Chemical Engineering/ Materials Science, Wayne State University.

2004 College of Liberal Arts & Sciences Excellence in Teaching Award, Wayne State University.

2003-2008 CAREER Award, National Science Foundation.

1996-1999 Doctoral Fellowship, German Government, "Studienstiftung des deutschen Volkes".

1994-1995 Abel-Wolman Fellowship, Johns Hopkins University.

1991 – 1996 Graduate Fellowship, German Government, "Studienstiftung des deutschen Volkes".

Grants

2021 – 2024 NSF-MRI: Acquisition of a Magnetic Property Measurements System for Multidisciplinary Research and Training in Detroit, \$364,080, PI

2016 – 2021 NSF-IUSE: WSU - Student Success Through Evidence-based Pedagogies (WSU-SSTEP), \$2,977,793, PI (2019-2021).

2013 – 2016 NSF-WIDER Planning Grant: Evaluation of WSU Use of Evidence-Based Methods in STEM Instruction, \$249,995, Co-PI.

2012 – 2015 MRI: Acquisition of an Integrated Fluorescence and Atomic Force microscope (IF-AFM) for biophysics, biomaterials and nanomedicine studies, NSF-DMR, \$373,231, PI.

2012 – 2015 MRI: Acquisition of A Dual-Beam Focus Ion-Beam (FIB) System for Nanotechnology Biomedical and Energy Research, NSF-ECCS, \$840,000, Co-PI.

2008 – 2013 Small-amplitude AFM studies of nanoconfined water, NSF-DMR, \$365,000, PI.

2009 – 2012 NSF-MRI, “Development of Rapid Annealing and in situ Characterization System”, \$454,457, Co-PI.

2013 Richard Barber Foundation, Collaborative undergraduate research in biomedical physics and biomedical engineering, \$60,000, PI.

2012 Richard Barber Foundation, Collaborative undergraduate research in biomedical physics and biomedical engineering, \$60,000, PI.

2011 Richard Barber Foundation, Collaborative undergraduate research in biomedical physics and biomedical engineering, \$65,000, PI.

2006-2011 NSF-DMR, “Nanoscale Dynamics of Confined Fluids by Time-Correlated Fluorescence Spectroscopy within an Atomic Force Microscope” \$345,613, Co-PI.

2003-2009 NSF-CAREER: “Sub-Angstrom amplitude Atomic Force Microscopy: From dissipation imaging to atomic manipulation”, \$450,000, PI.

2008 Richard Barber Foundation, Karen Beningo (PI), Mechanotaxis, \$35,000, Co-PI.

2003-2005 RESEARCH CORPORATION: “Single atom manipulation at room temperature in an atomic force microscope”, \$35,000, PI.

2004-2005 Ralph Wilson Medical Research Foundation, “New nanotechnological tools to study the distribution and diffusion of cancer metastasis-associated proteases at the cell membrane.”, \$90,900, Co-PI.

2002-2005 NSF-ANESA: “A new high resolution AFM technique for biological imaging (w. A. Oral, Bilkent University, Ankara, Turkey)”, \$24,200, PI.

2003-2007 NSF-MRI: “Development of Sub-Angstrom Amplitude Atomic Force Microscope for Biological and Liquid Environments”, \$209,104, PI.

2003-2004 NSF-MRI: “Acquisition of high resolution Scanning Hall Probe Microscope”, \$123,000 (25%), Co-PI.

2003 General Motors Research, \$13,500, Co-PI.

Research Interests

Interdisciplinary research interests in nanomechanics, soft matter physics, materials science, biophysics, geophysics (water), computational physics, cancer research, statistical physics, applications of physics to problems of medicine and materials, science education, science writing, intersection of science and humanities/arts.

Selected Presentations (last 6 years)

2021 *Complexities of Change: Lessons Learned from an Institution-level Project to Transform Undergraduate STEM Instruction*, American Association of Colleges and Universities, Conference on Transforming STEM Higher Education

2021 *Viscoelasticity and dynamics of nanoconfined water by atomic force microscopy*, American Physical Society

2020 *Reforming introductory physics for the life sciences at an urban research university*, American Association of Physics Teachers, Orlando Florida, invited

2018 Working group on Dynamic Multi-System Resilience in Human Aging, Santa Fe Institute, invited.

2017 Leibniz Center for New Materials, Saarbrücken, Germany, invited.

2016 Glenn Foundation on Aging Annual meeting, St. Barbara, CA, invited,

2016 National Institute on Aging, Baltimore, MD, invited.

2016, Andrews University, Berrien Springs, MI, Colloquium, invited.

2015 COMPFLU conference, IISER Pune, India, 3 invited talks.

2015 APS Ohio section meeting, "The Physics of Life", invited keynote.

2015 Regional Biophysical Society Meeting, University of Wisconsin, La Crosse, "Adventures in nanoscale biophysics", invited keynote.

2015 Biophysical Society Meeting, "Effect of Surface Density of Active Sites on Rupture Force Distributions of Single Molecule Interactions".

2015 University of Maryland, College Park, MD, Colloquium, invited.

2015 University of Alabama, Birmingham, AL, Colloquium, invited.

2015, Oakland University, MI, Seminar, invited.

Extended Visits

2017 Leibniz Institute for New Materials, Saarbrücken, Germany, invited guest researcher, 1.5 months.

Teaching

At Wayne State University, I have taught more than 1,100 students in 26 (15 different) undergraduate and graduate courses, from conceptual physics to graduate condensed matter physics. I have developed four entirely new courses, including a computational physics sequence and a new biological physics course. My teaching efforts have been rewarded by four different teaching awards.

I developed a new major, Biomedical Physics in 2008, and reformed the algebra-based physics sequence (lectures, discussions and labs) as part of the NSF-IUSE grant in 2016-2018.

Undergraduate Student Mentoring

I have mentored 16 (4 female, 12 male) undergraduate student researchers in my lab, have promoted/supported undergraduate research across the College of Liberal Arts and Sciences as Associate Dean, founded the CLAS Undergraduate Research Fair, and developed and held a number of workshops for beginning undergraduate researchers.

Graduate Students Supervised

Three new PhD students (starting 2018-2020): Gobin Acharya (Neutron diffraction of liquids confined in graphene oxide), Ramesh Tripathi (Single molecule AFM studies of live cells), Zachary Auner (Combining AFM and fluorescence microscopy)

2015 Anwesha Sarkar, Ph.D. "Interaction forces and reaction kinetics of ligand-cell receptor systems using atomic force microscopy."

2011 Essa Mayyas, Ph.D. "Single molecule measurements of protein dissociation."

2011 Venkatesh Subba-Rao, Ph.D. "Combining Atomic Force Microscopy and Fluorescence Correlation Spectroscopy for molecular scale measurements."

2010 Shah Khan, Ph.D., "Measuring the nanomechanics of nanoconfined water layers."

2007 George Matei, Ph.D. "Atomic Force Microscopy in nanoconfined liquids."

In addition to the PhD students, I also supervised 5 Master's students.

Post-doctoral Fellows supervised

2003-2005 Shivprasad Patil, now Associate Professor at IISER Pune, India

2005-2007 Mircea Pantea, now Research Associate at University of Windsor, Canada

Other mentoring

Co-mentored a graduate student in the biological sciences and mentored a visiting professor from Oakland Community College in research.

Publications and Media Contributions

Media Contributions

Public presentations:

- 2012 Microsoft Corporation: <https://www.microsoft.com/en-us/research/video/life-ratchet-how-molecular-machines-extract-order-from-chaos/>
- 2012 World Science Festival: <https://www.worldsciencefestival.com/videos/cellular-surgeons-the-new-era-of-nanomedicine/>

Popular science writing:

- “Physics makes aging inevitable, not biology”, Nautilus, May 2016, <http://nautil.us/issue/36/ging/physics-makes-aging-inevitable-not-biology>
- “The noise none of us can live without”, Nautilus, July 2016, <http://nautil.us/blog/the-noise-none-of-us-can-live-without>

Publications

Books:

2012 “Life’s Ratchet: How molecular machines extract order from chaos”, Basic Books, popular science book; Best 10 physics books of 2012 (IOP); 5 best physics books, Physics Today 2013; Long-listed for Royal Society Winton Prize (out of 12).

Book Chapters:

Peter M. Hoffmann “Small Amplitude Atomic Force Microscopy”, in Encyclopedia of Nanotechnology, Marcel Dekker (2004, revised 2012).

Gerko Oskam, Peter M. Hoffmann, Arun Natarajan, and Peter C. Searson, “Semiconductor / Electrolyte Boundaries”, in Encyclopedia of Electrical Engineering, Wiley (1998, revised 2007).

Thomas Nordlund, Peter M. Hoffmann, “Atomic Force Microscopy”, Chapter 19 in new edition of “Quantitative Understanding of Biosystems: An Introduction to Biophysics”, CRC Press (2019).

Research Journal Articles (>1650 citations, Google Scholar):

Anwasha Sarkar, Anjum Sohail, Jiayin Dong, Marco Prunotto, K. Shinki, Rafael Fridman and Peter M. Hoffmann, “Live cell measurements of interaction forces and binding kinetics between Discoidin Domain Receptor 1 (DDR1) and collagen I with atomic force microscopy”, BBA-General Subjects 1863 (11), 129402 (2019)

Shah H. Khan and Peter M. Hoffmann, “Diverging Effects of NaCl and CsCl on the Mechanical Properties of Nanoconfined Water”, Journal of the Electrochemical Society 165, H114-H120 (2018).

Shah H. Khan and Peter M. Hoffmann, “Electrolytes related dynamic mechanical properties of nanoconfined water”, ECS Transactions 77, 1607 (2017).

Steven K. Jones, Anweshar Sarkar, Daniel P. Feldman, Peter Hoffmann and Olivia Merkel, “Revisiting the value of competition assays in folate receptor-mediated drug delivery”, Biomaterials 138, 35 (2017).

Shah H. Khan, Edward L. Kramkowski, and Peter M. Hoffmann, “NaCl-dependent ordering and dynamic mechanical response in nanoconfined water”, Langmuir 32, 10802 (2016).

Shah H. Khan, Peter M. Hoffmann, “Young’s modulus of nanoconfined liquids?”, Journal of Colloid and Interface Science 473, 93 (2016).

Peter M. Hoffmann, "How molecular motors extract order from chaos (a key issues review)", *Rep. Prog. Phys.* 79, 032601 (2016).

Shah. H. Khan, Peter M. Hoffmann, "Squeeze-out dynamics of nanoconfined water: A detailed nanomechanical study", *Phys. Rev. B* 92, 042403 (2015).

Shah H. Khan, Edward L. Kramkowski, Peter J. Ochs, David M. Wilson, Peter M. Hoffmann, "Viscosity of a nanoconfined liquid during compression", *Appl. Phys. Lett.* 104, 023110 (2014).

Lian Guo, Gerko Oskam, Aleksandar Radisic, Peter M. Hoffmann, Peter C. Searson, "Island Growth in Electrodeposition", *Journal of Physics D: Applied Physics* 44, 443001 (2011).

Venkatesh Subba-Rao, Peter M. Hoffmann, Ashis Mukhopadhyay, "Tracer diffusion in nanofluids measured by fluorescence correlation spectroscopy", *Journal of Nanoparticle Research* 13, 6313 (2011).

Essa Mayyas, Margarida Bernardo, Lindsay Runyan, Anjum Solhail, Venkatesh Subba-Rao, Mircea Pantea, Rafael Fridman, and Peter M. Hoffmann, "Dissociation kinetics of an enzyme-inhibitor system using single-molecule force measurements", *Biomacromolecules* 11, 3352 (2010).

Shah Khan, George Matei, Shivprasad Patil, Peter M. Hoffmann, "Dynamic Solidification in Nanoconfined Water Films", *Physical Review Letters* 105, 106101 (2010). –featured paper with guest viewpoint by Prof. Steve Granick, , University of Illinois, (<http://prl.aps.org/toc/PRL/v105/i10>), as well as write-up in Nature India online (<http://www.natureasia.com/en/nindia/article/10.1038/nindia.2010.143>).

Peter M. Hoffmann, "Influence of thermal noise on measured bond lengths in force measurements using dynamic atomic force microscopy", *Journal of Vacuum Science & Technology B* 28, C4B12 (2010).

Venkatesh Subba-Rao, Sudakar Chandran, Jason Esmacher, Ratna Naik, Peter M. Hoffmann, "Improving a high-resolution fiber-optic interferometer through deposition of a TiO₂ reflective coating by simple dip-coating", *Review of Scientific Instruments* 80, 115104 (2009).

Y. Li, Q. Zheng, Z. Wang, R. Katragadda, W. Khalid, R. P. Panguluri, B. Nadgorny, P. M. Hoffmann, and Y. Xu, Development of Micro Scanning Multiprobes for Material Characterization, *Sensor Lett.* 6, 299–304 (2008).

George Matei, Steve Jeffery, Shivprasad Patil, Shah H. Khan, Mircea Pantea, John B. Pethica, and Peter M. Hoffmann, Simultaneous Normal and Shear Measurements of Nanoconfined Liquids in a Fiber-based Atomic Force Microscope, *Review of Scientific Instruments* 79, 023706 (2008).

S. Patil, G. Matei, C. A. Grabowski, P. M. Hoffmann and A. Mukhopadhyay, Combined Atomic Force Microscopy and Fluorescence Correlation Spectroscopy Measurements to Study the Dynamical Structure of Interfacial Fluids., *Langmuir* 23, 4988-4992 (2007).

Shivprasad Patil, George Matei, Ahmet Oral, and Peter M. Hoffmann, Solid or Liquid? Solidification of a Nanoconfined Liquid under Nonequilibrium Conditions, *Langmuir* 22, 6485-6488 (2006). Paper featured by ACS press release.

Shivprasad Patil, George Matei, Hang Dong, Peter M. Hoffmann, Mustafa Karaköse, and A. Oral, "A highly sensitive Atomic Force Microscope for linear measurements of molecular forces in liquids", *Rev. Sci. Instrum.* 76, 103705 (2005).

Shivprasad V. Patil and Peter M. Hoffmann, "Small-Amplitude Atomic Force Microscopy", *Adv. Eng. Mat.* 7, 707 (2005).

Steve Jeffrey, Peter M. Hoffmann, John B. Pethica, Chandra Ramanujan, H. Özgür Özer, and Ahmet Oral, "Direct measurement of molecular stiffness and damping in confined water layers", *Phys. Rev. B* 70, 054114 (2004).

H. Özgür Özer, Andrew Norris, Ahmet Oral, Peter M. Hoffmann, and John B. Pethica, "Low amplitude, force gradient imaging of Cu(100) surface using tunnel current feedback", *Nanotechnology* 15, S5-S8 (2004).

Peter M. Hoffmann, "Dynamics of small amplitude, off-resonance AFM", *Appl. Surf. Sci.* 210, 140-145 (2003).

Peter M. Hoffmann, Ahmet Oral and John B. Pethica, "Energy dissipation in AFM and Atomic Loss Processes", *Phys. Rev. Lett.* 87, 265502 (2001).

Ahmet Oral, Ralph A. Grimbale, H. Özgür Özer, Peter M. Hoffmann, and John B. Pethica, "Quantitative atom-resolved force gradient imaging using non-contact Atomic Force Microscopy", *Appl. Phys. Lett.* 79, 1915 (2001).

Peter M. Hoffmann, Ahmet Oral, Ralph A. Grimbale, H. Özgür Özer, Stephen Jeffery, and John B. Pethica, "Direct measurement of interatomic force gradients using an ultra-low amplitude AFM", *Proc. R. Soc. Lond. A* 457, 1161 (2001).

Aleksandar Radisic, John G. Long, Peter M. Hoffmann, and Peter C. Searson, "Nucleation and Growth of Copper on TiN from Pyrophosphate Solution", *J. Electrochem. Soc.* 148, C41 (2001).

Peter M. Hoffmann, Inge E. Vermeir, and Peter C. Searson, "Electrochemical Etching of n-Type Silicon in Fluoride Solutions", *J. Electrochem. Soc.* 147, 2999 (2000).

Peter M. Hoffmann, Aleks Radisic, and Peter C. Searson, "Growth Kinetics for Copper Deposition on Si(100) from Pyrophosphate Solution", *J. Electrochem. Soc.* 147, 2576 (2000).

Peter M. Hoffmann, Inge E. Vermeir, Arun Natarajan, and Peter C. Searson, "In Situ STM Characterization of Step-Bunching on Miscut Si(111) Surfaces in Fluoride Solutions", *J. Appl. Phys.* 85, 1545 (1999).

Peter M. Hoffmann, Gerko Oskam, and Peter C. Searson, "Analysis of the Impedance Response due to Surface States at the Semiconductor / Solution Interface", *J. Appl. Phys.* 83, 4309 (1998).

Gerko Oskam, John C. Schmidt, Peter M. Hoffmann, and Peter C. Searson, "Electrical Properties of n-Type (111)Si in Aqueous $K_4Fe(CN)_6$ Solution", J. Electrochem. Soc. 143, 2531 (1996).

Gerko Oskam, Peter M. Hoffmann, and Peter C. Searson, "In Situ Measurements of Interface States at Silicon Surfaces in Fluoride Solutions", Phys. Rev. Lett. 76, 1521 (1996).

Gerko Oskam, Peter M. Hoffmann, John C. Schmidt, and Peter C. Searson, "Energetics and Kinetics of Surface States at n-Type Silicon Surfaces in Aqueous Fluoride Solutions", J. Phys. Chem. 100, 1801 (1996).

Conference Proceedings

Peter M. Hoffmann, Shivprasad Patil, George Matei, Atay Tanulku, Ralph Grimbler, Özgür Özer, Steve Jeffery, Ahmet Oral, John Pethica, "Linear measurements of nano-mechanical phenomena using small-amplitude AFM", Mat. Res. Soc. Proc.838E, O1.8 (2005).

Peter M. Hoffmann, Steve Jeffery, Ahmet Oral, Ralph A. Grimbler, H. Özgür Özer, and John B. Pethica, "Nanomechanics using an ultra-small amplitude AFM", Mat. Res. Soc. Proc. 649, Q9.2.1 (2001).

Peter M. Hoffmann and V. Malhotra, "Freezing/Melting Transition of Physically Restricted n-Decane", Mat. Res. Soc. Proc. 366, 295 (1995).

Patents

Gerko Oskam, Peter C Searson, Philippe M Vereecken, John G Long, Peter M Hoffmann, "Copper metallization structure and method of construction", 2001/10/30, Patent number US 6309969.

Editorial Work and Refereeing

Guest Editor, Proceedings of the 5th International Conference on non-contact Atomic Force Microscopy, Montreal, Canada, 08/2002: Oversaw refereeing, editing and publication of 26 conference proceedings in Applied Surface Science (Elsevier), published: Applied Surface Science, Vol.210.

Referee: Journal of Physics; Review of Scientific Instruments; Ultramicroscopy; Journal of Physical Chemistry; Langmuir; Physical Review Letters; Applied Physics Letters; Nanotechnology etc. More than 40 papers reviewed.

Service

External reviews and consulting

Promotion & Tenure Reviews for George Washington University, Kansas State University, Cleveland State University, Worcester Polytechnic Institute, University of Richmond

Textbook reviews:

- Princeton University Press, 2017, 2018
- Giambattista et al., "College Physics", McGraw Hill publishers
- Hobson, "Physics: Concepts and Connections", Prentice Hall (2003 & 2004)

External grant reviews:

- Ohio State University, Reviewer, Materials Research Seed Grants, 2014
- Grant reviews, French National Research Agency (ANR), 2013
- National Science Foundation, CAREER Panel, October 2008
- National Science Foundation, IGERT Panel, June 2008
- Reviewer, NSF and NIH, 2007-2014, total of 9 proposals
- Reviewer, Research Corporation, 2005-2009, total of 3 proposals

Committees chaired:

Academic Program Review, Physics, 2020-2021

Review of the Dean of the Mike Ilitch School of Business, 2019 – Chair of review committee (surveys, interviews, comprehensive report)

RCM university budget planning, Co-lead of cost allocation committee, 2017-2019

Research Dean's meeting, 2017

CLAS Foundation relations, 2015-2017

College Undergraduate Research Committee, 2012-2017

PHY 2130/2140 Reform Committee, 2016-present

Introductory physics committee, 2018-

Physics Undergraduate Director/Advisor, 2018-

Faculty Search Committee, Biomedical Physics Search, 2012 – two faculty hired, including one URM in physics (offers made to two URM).

Publicity Committee, Department of Physics, 2003-2005

Biomedical Physics Committee, Department of Physics, 2006-present

Committees, Membership

University Strategic Planning Steering Committee, Planning committee in President's office to organize and steer development of new strategic plan for the entire university; initially only faculty member in the committee (appointed), Winter & Fall 2009.

Strategic Thinking Retreat, 2 day retreat to generate initial draft of university strategic plan, 03/09-03/10/2009 and again in November 2009

University Entrepreneurship committee, 2016-2017
University Library Committee, 08/09 - 05/13.
WIDER STEM teaching reform committee, 2013-present
STEM Commons steering committee, 2017-present
Review advisory panel, Academic program review, Chemical Engineering, 2013
University Undergraduate Research Committee, 2012-2016
Internal university grant committees 2012-2017, Bridge grant, Grants Plus. Office of the VP for Research
Speaker, New faculty forums, VP for Research office - featured speaker at four sessions: "How to get tenure", "How to run a lab", "Interdisciplinary Research", "How to improve your grant proposals", 2008-2010
Nano-Conference Committee, VP for Research office, Wayne State University, organizing a Nano-conference for 2007.
Nano@Wayne Committee, 2007-2016
Seminar & Website Committee, VP for Research office, Wayne State University Nanotechnology Initiative ("Nano@Wayne")
PHY 2170/2180 reform committee, 2012-present
Chair Review Committee, College Committee, 08/09-05/10
Strategic Planning Committee, Dept. of Physics, 08/2009-05/2010
Graduate Curriculum Committee, Dept. of Physics, 08/2007-05/2009
Executive Committee, Dept. of Physics, 08/2003-05/2007, 08/2008-05/2010, 08/2010-05/2012, 08/2018-07/2019
PHY 6780 laboratory planning committee, 09/2010-05/2012
Modern Physics Lab committee, 09/2011-05/2012
Organizer, Condensed Matter Seminar, 2004, 2011
Colloquium Committee, 08/2005-05/2006
Chair Search Committee, College Committee, 2004-2005
Life Science Building planning committee, CLAS, 08/2007-05/2010
Faculty Search Committee, 2003/2004, 2004/2005, 2006/2007, 2008/2009, 2018/2019
Salary Committee, 2005, 2011
Undergraduate Curriculum Committee, 01/06-05/07
Graduate Recruiting & Admissions Committee, 08/2003-05/2005

Renovation/Setup of Atomic Force Microscopy facility, College of Science & College of Engineering, assisting in setup and operation of general AFM facility, 2003.

Curriculum Reform

2008 Created Biomedical Physics BS degree, including minor, honors track and interdisciplinary accelerated graduate degree.

2008-2016 Created four new courses

- Computational Physics, 2 course sequence
- Biomedical Physics Seminar
- Biological Physics

2012-2015 Associate Dean for Academic Programs

- Administrative lead in creation of BS in Public Health
- Administrative lead in creation of fully online MS in Criminal Justice
- Administrative support for creation of BA Global Studies, BS Mathematical Economics
- Administrative lead in approval of new courses and program changes for 20 departments

NSF WIDER and IUSE

- Institutional transformation program in STEM teaching, PI, Dean's office and physics liaison.
- Workshops for faculty in collaboration with Office for Teaching and Learning.
- Introductory physics courses reform project, evidence-based teaching methods, inquiry labs, peer instructors.

Other Service and Community Activities

Quarknet high school program, talks to 30 students per year, 2012-2017

Public Lecture for "Science under the Dome", December 2010 & November 2011, September 2017

Outreach activity for "Camp Cosmos", June 2011

Outreach activity for Math Corps, August 2010, August 2011.

Outreach activity for cub scouts, March 2010.

Development of outreach brochures for Physics and Biomedical Physics.

University Scholar's day, Outreach to 'scholar' students, Physics Booth, 2006-2011.

Outreach Program as part of NSF-Career proposal:

Lecture to high school students from Southgate, MI, high school, 12/2008

Lab tour for Sanilac County Math & Science Center Students, 2008

Lecture at Macomb County Math & Science Center Students, 2008

Lecture on Nanoscience and Complex Fluids, Detroit Metro Physics Teachers (DMAPT),
Fall 2006

Job shadowing, High school students from Southgate High School, February 2007 &
February 2008.

Lecture to Physics High School students, Wyandotte High schools, March 2007

Science Café, organized by Cranbrook Institute of Science, February 2007

ICAE, gifted student program, April 2007

Outreach, Detroit Festival of Arts, Physics information booth, 09/2002 & 09/2003.

Detroit Science Center, Member of a group of eight faculty revising signage in the Detroit
Science Center, 06/2002 – 08/2004.

Judge, Junior Science & Humanities Symposium, March 2005.

Foreign Language Ability

English, German: Fluent

French: Reading knowledge

Personal

Married

US and German citizen

Hobby astronomer, writer and musician (jazz guitar)