

## Wade DeGottardi

---

CONTACT INFORMATION      Joint Quantum Institute      *cell:* (217) 480-5813  
Room 2253 Computer and Space Sciences Building, Bldg. 224      *work:* (301) 405-3258  
University of Maryland      *e-mail:* wdegottardi@gmail.com  
College Park, MD 20742      *website:* www.msdl.anl.gov/degottardi  
Citizenship: U.S.A.

RESEARCH INTERESTS      Condensed matter theory, low-dimensional systems, strongly correlated systems, topological order, and topological quantum computation.

EDUCATION      **University of Illinois at Urbana-Champaign**, Urbana, IL      **2006-2012**  
Ph.D in Physics  
Thesis: “Strong correlations and topological order in one-dimensional systems”  
Advisor: Smitha Vishveshwara

**Stanford University**, Stanford, CA      **1994-1998**  
B.S. Physics

HONORS, AWARDS, AND GRANTS      Co-PI, 2016-095-N0 “Probing the Bulk Transport Properties of Systems of Majoranas,” (Argonne Competitive Grants Project)

John Bardeen Award, 2014.

Lead PI, 2015-095-N0 “Probing the Bulk Transport Properties of Systems of Majoranas,” co-PI’s K. A. Matveev and W.-K. Kwok. (Argonne Competitive Grants Project)

Lead PI, 2014-095-N0 “Probing the Bulk Transport Properties of Systems of Majoranas,” co-PI’s K. A. Matveev and W.-K. Kwok. (Argonne Competitive Grants Project)

Scott Anderson Award, Spring 2011.

Excellence in Teaching Award, Fall, Spring 2007 and Fall 2008.

Graduate Assistance in Areas of National Need (GAANN) Fellowship, 2006-7.

EMPLOYMENT HISTORY      **Postdoctoral Researcher**, Joint Quantum Institute, University of Maryland      **2015-present**

**Postdoctoral Scientist**, Argonne National Laboratory      **2012-2015**

**Graduate Student**, University of Illinois      **2007-2012**

**Master Teacher**, Kaplan Test Prep      **2003-2006**

**Academic Manager**, Kaplan Test Prep      **1998-2006**

## PUBLICATIONS

1. W. DeGottardi, T.-C. Wei, and S. Vishveshwara, “Field-induced effects in carbon nanotubes,” *Phys. Rev. B* **79**, 205421 (2009).
2. W. DeGottardi, T.-C. Wei, V. Fernández, and S. Vishveshwara, “Accessing nanotube bands via crossed electric and magnetic fields,” *Phys. Rev. B* **82**, 155411 (2010).
3. W. DeGottardi, D. Sen, and S. Vishveshwara, “Topological phases, Majorana modes and quench dynamics in a spin ladder system,” *New J. Phys.* **13**, 065028 (2011).
4. M. Thakurathi, W. DeGottardi, D. Sen, and S. Vishveshwara, “Quenching across quantum critical points in periodic systems: dependence of scaling laws on periodicity,” *Phys. Rev. B* **85** 165425 (2012).
5. W. DeGottardi, S. Lal, and S. Vishveshwara, “Charge Fractionalization in a Mesoscopic Ring,” *Phys. Rev. Lett.* **110**, 026402 (2013).
6. W. DeGottardi, D. Sen, and S. Vishveshwara, “Majorana Fermions in Superconducting 1D Systems Having Periodic, Quasiperiodic, and Disordered Potentials,” *Phys. Rev. Lett.* **110**, 146404 (2013).
7. W. DeGottardi, M. Thakurathi, S. Vishveshwara, and D. Sen, “Majorana Fermions in superconducting wires: effects of long-range hopping, broken time-reversal symmetry and potential landscapes,” *Phys. Rev. B* **88**, 165111 (2013).
8. W. DeGottardi, “Topological insulating phases of non-Abelian anyonic chains,” *Phys. Rev. B* **90**, 075129 (2014).
9. W. DeGottardi and K. Matveev, “Transport in Inhomogeneous Luttinger Liquids,” *Phys. Rev. Lett.* **114**, 236405 (2015).

## MANUSCRIPTS IN PREPARATION

1. W. DeGottardi, Q.-L. Meng, S. Vishveshwara, and G. Baym, “Radiation from neutron star surfaces in high magnetic fields.”
2. L. Fang, J. Im, W. DeGottardi, Y. Jia, A. Glatz, K. Matveev, M. Kanatzidis, W.-K. Kwok, G. W. Crabtree, “Unusually large spin-orbit coupling strength in graphene-like 2D Material  $[\text{Pb}_2\text{BiS}_3][\text{AuTe}_2]$ .”

## PROFESSIONAL ACTIVITIES

*Carbon nanotubes as tunable Luttinger liquids*, Meeting of the American Physical Society, New Orleans, LA. March 2008. (Contributed talk)

*Charge fractionalization in a mesoscopic ring*, Meeting of the American Physical Society, Portland, OR. March 2010. (Contributed talk)

*Charge fractionalization in a mesoscopic ring*, 5th Windsor Summer School, Windsor, England. August 2010. (Contributed talk)

*Majorana modes in a spin-ladder system*, Meeting of the American Physical Society, Dallas, TX. March 2011. (Contributed talk)

Indian Institute of Science, Physics Department, Bangalore, India. June and July 2011. (Visitor)

*Majorana modes in a 1D superconducting wire subject to quasiperiodic and disordered potentials*, Argonne National Laboratory, Materials Science Division, Argonne, IL. January, 2012. (Invited Talk)

*Majorana modes in a 1D superconducting wire subject to quasiperiodic and disordered potentials*, Meeting of the American Physical Society, Boston, MA. March, March 2012. (Contributed talk)

*Majorana fermions in 1D superconducting wires subject to disorder and other spatial inhomogeneities*, Meeting of the American Physical Society, Baltimore, March 2013. (Contributed talk)

*Majorana fermions and other exotic quasiparticles in one-dimensional systems*, Northwestern University, April 2013. (Invited talk)

*Topological phases of non-abelian anyonic chains*, Argonne National Laboratory, Argonne, January 2014. (Invited talk)

*Topological phases of non-abelian anyonic chains*, Meeting of the American Physical Society, Denver, March 2014. (Contributed talk)

*Transport in low-dimensional quantum systems: a hydrodynamical approach*, Argonne National Laboratory, Argonne, April 2014. (Invited talk).

*Transport in inhomogeneous Luttinger liquids*, Free University of Berlin, Berlin, February 2015. (Invited talk).

*Transport in inhomogeneous Luttinger liquids*, University of Illinois, Urbana, February 2015. (Invited talk).

*The Luttinger liquid paradigm and beyond*, University of Pittsburgh, February 2015 (Invited talk).

*Transport in inhomogeneous Luttinger liquids*, Meeting of the American Physical Society, San Antonio, March 2015. (Contributed Talk).

*Topological 1D Systems*, University of Maryland, April 2015 (Invited talk).

*A Physicist Talks Lasers, Gravity, and Free Fall*, Authors Combat Academy, Nashville, April 2015 (Invited Talk).

*Topological Insulating Phases of Interacting Anyons*, Gordon Conference, Hong Kong, August 2015 (Poster).

Many-Body Physics with Light, Conference Participant, KITP, December 2015.

Referee for *Physical Review Letters*, *Physical Review B*, *Physical Review E*, and *Science Reports*.

TEACHING  
EXPERIENCE

**Teaching Assistant and Instructor**, University of Illinois **2007-2012**  
Presentation of lectures, supervision of group work. Wrote homework and discussion problems and solutions.

**Subject Matter Expert**, Kaplan University **2011**  
Designed an introductory course (SC 165 Physics, Mechanics). Authored syllabus, course outline, teaching guide, and exams.

Instructor	Physics 199 M	Mechanics Enrichment	Spring 2007
Teaching Assistant	Physics 212	Electricity & Magnetism	Fall 2007
Teaching Assistant	Physics 486-7	Quantum Mechanics I and II	Fall 2008
Teaching Assistant	Physics 598 QM	Special Topics in Condensed Matter	Spring 2011

**Academic Manager, Master Teacher**, Kaplan Test Prep **1998-2006**

Taught Kaplan LSAT, GRE, GMAT, MCAT, SAT and TOEFL courses. Hired, trained, and managed teachers for the Southern California area in LSAT, GRE, GMAT, MCAT, NCLEX, and SAT courses. Coauthored Kaplan MCAT, GRE, GMAT, and LSAT curriculum. Authored MCAT physics and general chemistry lessons as well as physics problems in Kaplan's *High Yield Problem Solving Book*. Co-authored Kaplan's SAT II Literature course and assisted in  $\alpha$ - and  $\beta$ -testing of the course.

**Toyon Hall Math and Physics Resident Tutor**, Stanford University **1996-7**

Directed weekly tutoring sessions in large 4-class dorm for calculus, linear algebra, abstract algebra, mechanics, electricity and magnetism and modern physics courses.