

Jennifer Brown

Curriculum Vitae

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Education

- Fall 2016 - **Mathematics PhD Program**, *UC Davis*, Davis, California.
Current
- 2010 - 2013 **B.Sc, Physics and Mathematics**, *Georgetown University*, Washington, DC.
Cum Laude, Pi Mu Epsilon Honours.

Work Experience

- Fall 2016 - **Teaching Assistant**, *UC Davis Mathematics Department*.
- Winter 2020 Led discussion sections for undergraduate calculus courses. Prepared lectures, administered exams and quizzes, graded, and held office hours.
- 2013-2016 **Data Infrastructure Engineer**, *Opower (Oracle Subsidiary)*.
Designed, built, and managed both MySQL and Hadoop/Hbase based distributed compute and storage infrastructure. Built-out monitoring and provisioning systems, maintained tooling and cluster job code in Java, Ruby, Python and Bash. Served as on-call engineer.
- 2012-2013 **Research Assistant**, *G.U. Physics Department*.
Worked under Professor Marcos Rigol. Studied hard-core lattice bosons in modulated trapping potentials. Implemented simulations in C/C++, managed, processed and interpreted data sets.
- Summer 2012 **Summer Student**, *CERN*.
Worked with the LHCb online control group in preparation for the 2013 LHC upgrade. Prototyped custom networking hardware for measuring network latencies with nanosecond accuracy using FPGAs. Synthesized and tested firmware, presented work in an internal communication.
- 2010-2012 **Research Assistant**, *G.U. Mathematics Department*.
Worked under Professor Judith Miller. Researched effects of migration on the genetic architecture of populations, specifically the phenomenon of mutation surfing. Designed computer simulations, interpreted results and worked on data processing. Presented results in regular reports and at a conference.
- Summer 2010 **Trekking Co-director**, *Boy Scouts of America*.
Organized and ran week-long backpacking trips in the California's Sierra Nevada. Specific responsibilities included all meal planning and preparation, route setting, coordination with base camp staff, wilderness medical care, organizing service projects and educational programs.
- Summers of **Sports Director, Head Stewart**, *Boy Scouts of America*.
2008, 2007 Lead a small team in designing and running outdoor educational programs. Managed inventories, organized meals for 200+ scouts in cooperation with kitchen staff. Administered first aid and organized service projects.

Conferences & Workshops

- **Connections for Women: Geometric and Arithmetic Aspects of Homogeneous Dynamics**, January 29-30, 2015.
MSRI. Berkeley, California
- **Summer School on Current Topics in Mathematical Physics**, July 17-21, 2017,
With support from the organizers.
Universität Zürich. Zurich, Switzerland.
- **Séminaire de Mathématiques Supérieures 2018: Derived Geometry and Higher Categorical Structures in Geometry and Physics**, June 11-22, 2018,
With support from MSRI and the UC Davis GSA.
The Fields Institute. Toronto, Canada
- **XIX International Congress on Mathematical Physics**, July 23-28, 2018, *With support by the NSF grant of Evans Harrell.*
Montreal, Canada
- **International Congress of Mathematicians**, August 01-09, 2018, *With support by the NSF grant of Motohico Mulase.*
Rio de Janeiro, Brazil
- **Derived Algebraic Geometry, Birational Geometry and Moduli Spaces**, January 28 - February 8, 2019.
MSRI. Berkeley, California
- **Derived Algebraic Geometry and its Applications**, March 25-29, 2019.
MSRI. Berkeley, California
- **Chiral Algebras for the 21st Century**, April 15-19, 2019.
Davis, California
- **QFT for Mathematicians**, June 17 - 28, 2019, *With support from the organizers.*
Perimeter Institute. Waterloo, Canada.
- **Graduate Summer School: Quantum Field Theory and Manifold Invariants**, June 30 - July 20, 2019, *With support from the organizers.*
Park City Mathematics Institute. Park City, Utah.
- **Integrability, Geometry and Moduli**, July 29 - August 2, 2019, *With support from the organizers.*
Max Planck Institute for Mathematics. Bonn, Germany.
- **Quantum Symmetries**, January 27 - January 31, 2020.
MSRI. Berkeley, California
- **Higher Categories and Categorification**, February 10 - February 14, 2020.
MSRI. Berkeley, California

Awards & Honors

Hazel B. Jacoby Fellowship, UCD Department of Mathematics, June 2019.
Awarded by the Department of Mathematics for the purpose of recruiting and retaining outstanding graduate students.

Yueh-Jing Lin Award, UCD Department of Mathematics, June 2020.
Awarded to high-achieving mathematics students.

Other Experience

- 2001-2008 **Youth Leader**, *Girl Scouts of America - Backpacking Interest Group*.
Helped plan and lead backpacking trips for pre-teen and teenage girls. Maintained backpacking equipment, obtained permits, and administered first aid.
- Fall 2011 **Math Instructor**, *US State Department - EducationUSA Accra*.
Taught introductory mathematics and physics in classroom settings and with small groups. Advised Ghanaian high school graduates pursuing higher education in the United States.

Publications and Presentations

- J. Brown. Parametric excitations of lattice hard-core bosons in a time-dependent harmonic trap. Master's thesis, Georgetown University, 2013. B.Sc. Honors Thesis.
- J. Brown. Paired classical and quantum knot invariants and a k-theory clue for heisenberg quantization. Seminar Talk, Oct. 2018.
- J. Brown. Recursion properties of quantum knot invariants. Seminar Talk, Oct. 2019.
- J. Brown and J. Miller. The spatial dynamics of mean fitness and genetic variance during invasions. Poster presented at Georgetown Undergraduate Research Conference, 2012.
- Jennifer Brown, Tudor Dimofte, Stavros Garoufalidis, and Nathan Geer. The ADO invariants are a q-holonomic family, 2020.
- K. He, J. Brown, S. Haas, and M. Rigol. Driven dipole oscillations and the lowest-energy excitations of strongly interacting lattice bosons in a harmonic trap. *Phys. Rev. A*, 89:033634, Mar. 2014.