McFeely Jackson Goodman

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Interests

Differential Geometry. Metrics with positive and nonnegative curvature conditions. Moduli spaces, index theory, and topology of such metrics. Lie group actions. Geometry and topology of orbifolds.

Employment

University of California, Berkeley, *Berkeley, CA*   2020-Present
  ∘ NSF Postdoctoral Scholar and Lecturer.

Education

University of Pennsylvania, *Phildelphia, PA*   2015-2020
  ∘ PhD in mathematics.
  ∘ Advisor: Wolfgang Ziller
  ∘ Thesis: "Moduli Spaces of Riemannian Metrics with Positive and Nonnegative Ricci and Sectional Curvature"

Swarthmore College, *Swarthmore, PA*   2009-2013
  ∘ Bachelor of Arts in Mathematics and Physics, High Honors.

Publications and Preprints

  ∘ *Extremality and rigidity for scalar curvature in dimension four* (with R. Bettiol), arXiv:2205.00543 (2022)
  ∘ *Moduli space of nonnegatively curved metrics on quotients of $S^2 \times S^3$ by involutions* (with J. Wermelinger), arXiv:2204.01189 (2022)
    (to appear in Differential Geom. Appl.)
  ∘ *Moduli Spaces of Ricci Positive Metrics in Dimension Five*, arxiv:2002.00333v2, (2020)
    (to appear in Geom. Topol.)
  ∘ *Moduli spaces of nonnegatively curved metrics on exotic spheres*, arXiv:2107.02310 (2021)
  ∘ *On the Moduli Spaces of Metrics with Nonnegative Sectional Curvature*, Ann. Global Anal. Geom. **57** (2020) 305-320.

Invited Talks

Oregon State University Mathematics Department Colloquium   *Corvallis, OR*   May 2022
  ∘ Moduli spaces of positive curvature in Riemannian geometry
Joint Mathematics Meeting (MSRI Special Session on Metric Geometry and Topology) *Virtual*   April 2022
  ∘ Moduli spaces of nonnegatively curved metrics on exotic spheres
Augsburg-Fribourg-Karlsruhe Riemannian Topology Meeting *Fribourg, Switzerland*   November 2018
  ∘ Spin^c Dirac Operators and the Kreck-Stolz s Invariant
AMS Spring Western Sectional Meeting (Special Session in Differential Geometry), *Portland, OR*,   April 2018.
  ∘ On the Moduli Spaces of Metrics with Nonnegative Sectional Curvature

Seminar Talks

University of Oregon Geometric Analysis Seminar *Eugene, OR*
  ∘ Area extremality and Nonnegative Curvature in Dimension 4, May 2022.
University of Wisconsin-Madison Geometry and Topology Seminar *Madison, WI*
  ∘ Moduli Spaces of Nonnegative Curvature on Exotic Spheres, April 2022.
University of Pennsylvania Geometry and Topology Seminar *Philadelphia, PA*
  ∘ Area extremality and Nonnegative Curvature in Dimension 4, March 2022.
Augsburg-Fribourg-Karlsruhe Riemannian Topology Research Seminar *Online*
  ∘ Moduli spaces of nonnegatively curved metrics on exotic spheres, October 2021.
Duke University Geometry/Topology seminar., *Durham, NC*
  ∘ Moduli Spaces of Ricci Positive Metrics in Dimension Five, March 2021.
McMaster University Geometry and Topology Seminar, *Hamilton, Canada*
  ∘ Moduli spaces of Ricci positive metrics in dimension five, January 2021.

University of Oregon Topology/Geometry Zoom Seminar, *Online*
- Area extremality and Nonnegative Curvature in Dimension 4, April 2022.
- Moduli spaces of nonnegatively curved metrics on exotic spheres, June 2021.
- Moduli Spaces of Ricci Positive Metrics in Dimension Five, January 2021.

Syracuse University Geometry and Topology Seminar, *Syracuse, NY*
- Moduli Spaces of Ricci Positive Metrics in Dimension Five, October 2020.

University of California, Berkeley Differential Geometry Seminar, *Berkeley , CA*
- Moduli Spaces of Ricci Positive Metrics in Dimension Five, October 2020.

CUNY Graduate Center Geometric Analysis Seminar, *New York, NY*
- Moduli Spaces of Ricci Positive Metrics in Dimension Five, February 2020.

Notre Dame Felix Kline Seminar in Geometry, *South Bend, IN*
- Moduli Spaces of Ricci Positive Metrics in Dimension Five, November 2019.

Karlsruher Institut für Technologie AG Differentialgeometrie Seminar, *Karlsruhe, Germany*
- Spin^c Dirac Operators and Moduli Spaces of Metrics, November 2018.

Universität Augsburg Oberseminar Differentialgeometrie, *Augsburg, Germany*
- Spin^c Dirac operators and Moduli spaces of metrics, November 2018.

IMPA Differential Geometry Seminar, *Rio de Janeiro, Brazil*
- On the Moduli Spaces of Metrics with Nonnegative Sectional Curvature, July 2018.

Contributed Talks

Geometry of Scalar Curvature Summer School, *Cortona, Italy*
- Index theory results in Gromov's *Metric Inequalities with Scalar Curvature*

University of Pennsylvania Department Wide Graduate Student Seminar, *Phildelphia, PA*
- 5 occasions, including 2 at the PhD Program Prospective Students Conference

University of Pennsylvania Geometry and Topology Graduate Student Seminar, *Phildelphia, PA*
- 9 occasions.

Teaching Experience

Instructor, University of California, Berkeley, *Berkeley, CA*
- Math 104: Introduction to Analysis, Spring 2022.
- Math 104: Introduction to Analysis, Fall 2021.

Center for Teaching and Learning, University of Pennsylvania, *Phildelphia, PA*
- Graduate Fellow for Teaching Excellence, 2019-2020.

Master Teaching Assistant, University of Pennsylvania, *Phildelphia, PA*
- Mathematics Department Teacher Training program, 2017-2019.

Instructor, University of Pennsylvania, *Phildelphia, PA*
- Math 114: Multivariable Calculus, Summer 2018.

Teaching Assistant, University of Pennsylvania, *Phildelphia, PA*
- Math 360: Advanced Calculus, Spring 2020.
- Math 241: Partial Differential Equations, Fall 2019.
- Math 114E: Multivariable Calculus for Engineers, Spring 2018.
- Math 509: Advanced Analysis, Spring 2017.
- Math 114: Multivariable Calculus, Fall 2016.

Math Project Leader, City Year New York , *New York, NY*
- Trained and supervised math tutors in New York City public schools, 2013-2014.

Teaching Assistant, Swarthmore College, *Swarthmore, PA*
- Math 35: Honors Multivariable Calculus, Spring 2011.

Grader and Tutor, Swarthmore College, *Swarthmore, PA*
- Mathematics Department and Physics Department 2010-2013.

Awards and Honors

NSF Mathematical Sciences Postdoctoral Research Fellowship.   2020
- National Science Foundation

Herb S. Wilf Memorial Prize For Research and Communication.   2019
- University of Pennsylvania *Phildelphia, PA*

Moez Alimohamed Graduate Student Award for Distinguished Teaching in Mathematics.   2019
- University of Pennsylvania *Phildelphia, PA*

Mathematics Department Good Teaching Award.   Fall 2016, Spring 2017, Spring 2018, Fall 2019, Spring 2020
- University of Pennsylvania *Phildelphia, PA*

Phi Beta Kappa National Honor Society Member.   2013
- Swarthmore College, *Swarthmore, PA*