

Anusha M. Krishnan

Curriculum vitae

University of Münster, Germany
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Employment

- 2021-present Postdoctoral fellow, University of Münster, Germany
- 2019-2021 Philip T. Church Postdoctoral Fellow, Syracuse University, USA

Education

- 2013-2019 Ph.D. in Mathematics, University of Pennsylvania, USA
Advisor : Professor Wolfgang Ziller
- 2008-2013 M.Sc. (5 year Integrated) in Mathematics, Indian Institute of Technology, Kanpur, India

Research interests

Differential Geometry. Lie group actions on manifolds, esp. homogeneous spaces and cohomogeneity one manifolds. Metrics of positive and non-negative curvature. Ricci flow. Prescribed Ricci curvature.

Publications and Preprints

1. *Total symmetries of collapsed ancient solutions to the homogeneous Ricci flow* (with F. Pediconi, S. Sbiti)
Preprint. arXiv:2312.01469.
2. *10-dimensional positively curved manifolds with T^3 -symmetry* (with M. Wiemeler)
Preprint. arXiv:2310.12689.
3. *Ricci flow does not preserve positive sectional curvature in dimension four* (with R. Bettiol)
Calc. Var. Partial Differential Equations, 62 (2023), no. 1, Article No. 13. arXiv:2112.13291.
4. *Prescribing Ricci curvature on a Product of Spheres* (with T. Buttsworth)
Ann. Mat. Pura Appl., 201 (2022), 1–36. arXiv:2010.05118.
5. *Diagonalizing the Ricci tensor*
J. Geom. Anal., 31 (2021), 5638–5658. arXiv:1912.12686.
6. *Four-dimensional cohomogeneity one Ricci flow and nonnegative sectional curvature* (with R. Bettiol)
Comm. Anal. Geom., 27 (2019), 511–527. arXiv:1606.00778.
7. *Making Matrices Better : Geometry and topology of polar and singular value decomposition* (with D. DeTurck, A. Elsaify, H. Gluck, B. Grossmann, J. Hoisington, J. Zhang)
Not. Amer. Math. Soc. 64 (2017) 876-886. arXiv:1702.02131.

Awards and Honors

- 2018 Good Teaching Award, Department of Mathematics, University of Pennsylvania
- 2017 Herbert S. Wilf Memorial Prize, Department of Mathematics, University of Pennsylvania
- 2016 Dean's Scholar Award, University of Pennsylvania
- 2013 Best MSc project in Mathematics, Indian Institute of Technology, Kanpur, India

Grants and Fellowships

- 2021 Offered the INSPIRE Faculty fellowship, DST (declined)
- 2018-2019 Dissertation Completion Fellowship, School of Arts and Sciences, University of Pennsylvania
- 2012 WISE Scholarship, DAAD (German Academic Exchange Service)
- 2008-2013 Kishore Vaigyanik Protsahan Yojana (KVPY) *English : Young Scientist Incentive Plan*

Invited talks

- Jan 2024 Virtual Seminar on Geometry with Symmetries
- Jan 2024 Indian Institute of Technology Bombay, India, Analysis and PDE seminar
- Aug 2023 TIFR Centre For Applicable Mathematics, Bangalore, India, Colloquium
- Aug 2023 Indian Statistical Institute, Bangalore, India, Colloquium
- July 2023 British Inland Graduate Workshop: Geometric flows and related topics
- Aug 2022 IISc, Bangalore, India, Geometry/Topology Seminar
- Jul 2022 Humboldt University, Berlin, Germany, Geometric Analysis Seminar
- Jun 2022 Virtual Seminar on Geometry with Symmetries
- Jun 2022 University of Münster, CRC Colloquium for PhD students and postdocs
- Mar 2022 University of Waterloo, Geometry and Topology Seminar
- Jan 2022 University of Münster, Germany, Oberseminar Differential Geometrie
- Dec 2021 University of Florence, Italy, Geometry Seminar
- Nov 2021 Irish Geometry Seminar
- Jul 2021 Mathematical Congress of the Americas, Special Session on Group actions in Differential Geometry
- Mar 2021 AMS Virtual Sectional Meeting, Special Session on Recent developments in Differential Geometry
- Mar 2021 North Carolina State University, USA, Geometry-Topology Seminar
- Feb 2021 Tata Institute of Fundamental Research, Mumbai, India, Colloquium
- Nov 2020 Indian Statistical Institute, Bangalore, India, Colloquium
- Nov 2020 University of Georgia, USA, Topology-Geometry Seminar
- Nov 2020 University of Oregon, Topology/ Geometry Zoom Seminar
- Oct 2020 UC Riverside, USA, Differential Geometry Seminar
- Aug 2020 Virtual Workshop on Ricci and Scalar Curvature
- Jun 2020 Dartmouth College, New York, USA, Geometry Seminar
- Apr 2020 CUNY Graduate Center, New York, USA, Geometric Analysis Seminar
- Jan 2020 University of Oklahoma, USA, Symmetry and Geometry on the Southern Great Plains Conference
- Jan 2020 Indian Institute of Science, Bangalore, India, Geometry & Topology Seminar
- Sep 2019 University of Pennsylvania, USA, Workshop on math advice and networking
- Feb 2019 UC Riverside, USA, Colloquium
- Jul 2018 IMPA, Rio de Janeiro, Brazil, Geometry Seminar
- May 2018 University of Florence, Italy, Geometry Seminar
- Mar 2018 AMS Sectional Meeting, Ohio State University, USA, Special Session on symmetry in Differential Geometry
- Jan 2018 AMS Joint Meetings 2018, San Diego, USA, Special Session on Metric Geometry and Topology
- Nov 2017 Kansas State University, USA, Midwest Geometry Conference 2017
- Sep 2017 AMS Sectional Meeting, UNT, USA, Special Session on Differential Geometry of Smooth and Discrete Surfaces in Euclidean and Lorentz spaces
- Aug 2017 St. Joseph's University, USA, Conference on Representations of Riemannian Geometry
- Oct 2016 CUNY Graduate Center, New York, USA, Geometric Analysis Seminar

Contributed talks

- Feb 2019 Australian-German Workshop on Differential Geometry in the Large, MATRIX, Australia
- Jun 2018 Oberwolfach, Germany, Geometrie Workshop
- Jan 2018 CUNY (Graduate Center), New York, USA, Workshop on Scalar Curvature

- Apr 2017 Max Planck Institute for Mathematics, Bonn, Germany, Young Women in Geometry Workshop
- May 2016 Temple University, USA, Graduate Student Conference in Algebra, Geometry and Topology
- Oct 2015 University of Pennsylvania, USA, Graduate Pizza Seminar
- Oct 2014 Univ. of the Sciences, Philadelphia, USA, Eastern Pennsylvania and Delaware Section meeting of the MAA
- 2013-2018 University of Pennsylvania, USA, Graduate Geometry-Topology Seminar

Conferences and workshops

- Aug 2023 Analytic Methods in Complex Geometry, University of Münster, Germany
- Aug 2023 Workshop on Curvature and Global Shape, University of Münster, Germany
- July 2023 ICMS Workshop: Geometric Flows and Applications, Edinburgh, UK
- July 2023 British Inland Graduate Workshop: Geometric flows and related topics, Inverness, UK
- Jun 2022 Differential Geometry and Geometric Analysis Conference, Florence, Italy
- Jun 2022 Geometrie Workshop, Oberwolfach, Germany
- Nov 2021 New Trends in Geometric PDEs, University of Münster, Germany
- Aug 2021 Workshop on Curvature and Global Shape 2021, University of Münster, Germany
- Jul 2021 Mathematical Congress of the Americas
- Mar 2021 AMS Virtual Sectional Meeting
- Aug 2020 Virtual Workshop on Ricci and Scalar Curvature
- Jan 2020 Symmetry and Geometry on the Southern Great Plains, University of Oklahoma, USA
- Sep 2019 Workshop on math advice and networking, University of Pennsylvania, USA
- Feb 2019 Australian-German Workshop on Differential Geometry in the Large, MATRIX, Creswick, Australia
- Jan 2019 AMS Joint Meetings, Baltimore, USA
- Jul 2018 Modern Trends in Differential Geometry, University of São Paulo, Brazil
- Jun 2018 Geometrie Workshop, Oberwolfach, Germany
- Apr 2018 33rd Geometry Festival, University of Pennsylvania, USA
- Mar 2018 AMS Sectional Meeting, Ohio State University, USA
- Jan 2018 Workshop on Scalar Curvature, CUNY (Graduate Center), New York, USA
- Jan 2018 AMS Joint Meetings, San Diego, USA
- Nov 2017 Midwest Geometry Conference 2017, Kansas State University, USA
- Sep 2017 AMS Sectional Meeting, University of North Texas, Denton, USA
- Aug 2017 Representations of Riemannian Geometry (in honor of W. Ziller's 65th birthday), Saint Joseph's University, Philadelphia, USA
- Jul 2017 Summer School in Geometric Analysis, Fields Institute, Toronto, Canada
- Jun 2017 Lie Group Actions in Riemannian Geometry, Dartmouth College, USA
- Jun 2017 Graduate Student Conference in Algebra, Geometry, and Topology, Temple University, Philadelphia, USA
- Apr 2017 Young Women in Geometry, Max Planck Institute for Mathematics, Bonn, Germany
- Oct 2016 Geometric Analysis Conference 2016, Rutgers University, USA
- Aug 2016 Reflections on Global Riemannian Geometry (in honor of K. Grove's 70th birthday), Townsend, USA
- Jul 2016 Differential Geometry in the Large (in honor of W. Meyer's 80th birthday), Florence, Italy
- May 2016 Graduate Student Conference in Algebra, Geometry and Topology, Temple University, Philadelphia, USA
- Apr 2016 31st Geometry Festival, Princeton University, USA
- Jan 2016 Introductory Workshop : Modern Riemannian Geometry, MSRI, Berkeley, USA
- Dec 2015 ATM Workshop on Topology, Indian Statistical Institute, Kolkata, India
- Jul 2015 Workshop on Curvature and Global Shape, University of Münster, Germany
- Jul 2015 Summer School in Geometric Analysis, Northwestern University, Evanston, USA
- May 2015 Workshop on Ricci Curvature, Northwestern University, Evanston, USA
- May 2015 30th Geometry Festival, Courant Institute of Mathematical Sciences, New York, USA
- Feb 2013 ATM Workshop on Topology, Institute of Mathematical Sciences, Chennai, India
- Jul 2012 Young Women in Topology, Ruhr Universität Bochum, Germany

Teaching experience

British Inland Graduate Workshop (Mentor)

July 2023 Designed and mentored a workshop with student talks on *Ricci flow invariant curvature conditions*

University of Münster, Germany (Teaching Assistant)

Winter 2023-24 Differential Geometry II

Winter 2022-23 Differential Geometry I

Syracuse University, USA (Instructor)

Spring 2021 MAT 331, Linear Algebra

Fall 2020 MAT 295, Calculus I

MAT 990, Independent Study Course on Lie Groups

Spring 2020 MAT 331, Linear Algebra

Fall 2019 MAT 295, Calculus I

University of Pennsylvania, USA (Instructor)

Summer 2016 Math 114, Calculus II

University of Pennsylvania, USA (Teaching Assistant, Grader)

Spring 2018 Math 360, Advanced Calculus

Spring 2016 Math 501/465, Differential Geometry

Math 601, Geometric Analysis and Topology

Spring 2015 Math 114, Calculus II

Fall 2014 Math 104, Calculus I

Department Service

Syracuse University

2020-2021 Primary organizer of the weekly Geometry-Topology seminar

Fall 2019 Co-organizer of the Putnam problem-solving seminar

University of Pennsylvania

2015-2019 Conducted workshops to train and evaluate first-time TAs