Ved V. Datar

Curriculum Vitae

CONTACT AND PERSONAL INFORMATION

- **Address.** Dept. Of Math., Indian Institute of Science (IISc), Bangalore, KA - 560012, India
- **Email Address.** vvdatar@iisc.ac.in
- **Webpage.** `www.math.iisc.ac.in/~vvdatar`

RESEARCH INTERESTS

- Geometric Analysis
- Complex differential geometry

EMPLOYEMENT

- *Assistant Professor* September 2018 - Present
  Indian Institute of Science (IISc), Bangalore, India
- *Summer Lecturer* June 2018 - August 2018
  UC Berkeley, Berkeley, USA
- *RTG postdoc* July 2015 - June 2018
  UC Berkeley, Berkeley, USA
- *Visiting Instructor* August 2014 - May 2015
  University of Notre Dame, Notre Dame, USA
- *Teaching Assistant and Graduate student* Fall 2008-July 2014
  Rutgers, The State University of New Jersey, New Brunswick, USA

EDUCATION

- *Ph.D.,* Mathematics, May 2014
  Rutgers, The State University of New Jersey, New Brunswick, NJ
  Advisor. Jian Song
  Thesis title. *Canonical Kähler metrics with cone singularities*
  `https://rucore.libraries.rutgers.edu/rutgers-lib/44071/`.
- *Bachelor of Science (Honors),* Mathematics and Computer Science, August 2008
  Chennai Mathematical Institute, India.

RESEARCH PUBLICATIONS AND PREPRINTS (in the order they appeared on arXiv)

12. *Diameter rigidity for Kahler manifolds with positive bisectional curvature* (with Harish Seshadri), Math. Ann. (2022), `https://link.springer.com/article/10.1007/s00208-021-02355-8`.
11. *Kähler-Einstein metric near an isolated log canonical singularity* (with Xin Fu and Jian Song), preprint: arXiv:2106.05486.
10. *Metric rigidity of Kahler manifolds with lower Ricci bounds and almost maximal volume* (with Harish Seshadri and Jian Song), Proc. of the AMS, **149** (2021), no. 8, 3569–3574.
9. *A numerical criterion for generalised Monge-Ampere equations on projective manifolds* (with Vamsi Pingali), Geom. Func. Anal. (GAFA), **31** (2021), no. 4, 767–814.
8. *On coupled constant scalar curvature Kähler metrics* (with Vamsi Pingali), J. Symplectic Geom, **18** (2020), no. 4, 961–994.
7. *Adiabatic limits of anti-self-dual connections on collapsed K3 surfaces* (with Adam Jacob and Yuguang Zhang), J. Differential Geom. **118** (2021) 223-296.

6. *Hermitian-Yang-Mills connections on collapsing elliptically fibered K3 surfaces* (with Adam Jacob), J. Geom. Anal. **32** (2022), https://link.springer.com/article/10.1007/s12220-021-00808-9.
5. *Expansions of solutions to extremal metric type equations on blow-ups of cscK surfaces*, Ann. Global Anal. Geom. **55** (2019), no. 2, 215–241.
4. *Kähler-Einstein metrics along the smooth continuity method* (with Gábor Székelyhidi), Geom. Funct. Anal. (GAFA) **26** (2016), no. 4, 975–1010.
3. *On convexity of the regular set of conical Kähler-Einstein metrics*, Math. Res. Lett. **23** (2016), no. 1, 105-126.
2. *A remark on Kähler metrics with conical singularities along a simple normal crossing divisor* (with Jian Song), Bull. Lond. Math. Soc. **47** (2015), no. 6, 1010–1013.
1. *Connecting toric manifolds by conical Kähler-Einstein metrics* (with Bin Guo, Jian Song and Xiaowei Wang), Adv. Math. **323** (2018), 38–83.

OTHER PUBLICATIONS

1. *An overview of the work of Karen Uhlenbeck* (with Agnid Banerjee), The Mathematics Consortium Bulletin, July 2020 Vol. 2, Issue 1.

AWARDS

- *Infosys Young Investigator Award* August 2019-July 2021
- *AMS travel award for attending Joint Mathematics Meetings* November 2013
- *SAS Excellence Fellowship for dissertation work in Mathematics* Fall 2013
  School of Arts and Sciences (SAS), Rutgers University
- *TA Teaching Excellence Award*, Spring 2012
  Department of Mathematics, Rutgers University
- *Fellowship from National Board for Higher Mathematics, India*, 2005-2008
  Awarded based on performance in the Indian National Mathematics Olympiad

SERVICE

- Referee for Annales de l'Institut Fourier, American journal of mathematics, Journal of geometric analysis, Mathematical Research Letters, Journal of Differential Geometry and Proceedings of the Indian academy of Sciences.
- Organiser for the IISc Geometry and Topology seminar (Aug 2019-Dec 2021), and co-organiser (with Vamsi Pingali) of the IISc informal geometric analysis seminar.
- ATM schools - AIS in *Riemannian Geometry* (July 2019) and Geometric Analysis (Dec, 2019), ATM-IST in *Geometry of Complex functions* (July 2021).
- Organised the UC Berkeley Differential geometry seminar in Fall 2016 and Spring 2018.
- Co-organized (with Richard Bamler) the student differential geometry seminar at Berkeley in Spring 2017.

MENTORING

- PhD Students - Ramesh Mete (ongoing), Sivaram P (ongoing).
- UG/MSc Students - Saurav Ghosh (CMI, MSc Project, August 2019), Vasanth P (MSc Project, 2020-21), Adithya Upadhya (UG Project, Jan 2021).
- Summer projects - Gobinda Debnath (NIT Agartala, 2019).

CONFERENCE TALKS

- *Non-linear PDEs and positivity conditions in algebraic geometry*, September, 2021
  IISc-IISER-Pune mathematics symposium.
- *Moment maps and canonical metrics in complex geometry*, July, 2020
  Virtual Math Fest.
- *Adiabatic limits of ASD connections on collapsed K3 surfaces*, March, 2019
  International conference on Algebraic and Analytic Geometry,
  Kerela School of Mathematics (KSOM).
- *Constant scalar curvature metrics on blow-ups of Kähler surfaces*, Nov. 2017
  AMS Special session on Geometric Analysis,
  Fall Western sectional meeting, UC Riverside.
- *Extremal metrics on blow-ups*, Jul. 2017
  Trends In Modern Geometry 2017, Tokyo, Japan.
- *Kähler-Einstein metrics along the smooth continuity method*, Jun. 2016
  Recent advances in complex differential geometry, Toulouse, France.
- *Kähler-Einstein metrics along the smooth continuity method*, Jun. 2015
  Jagiellonian University, Krakow, Poland.
- *Conical soliton metrics on Kähler manifolds*, Mar. 2014
  Special Session on Interaction between Complex and Geometric Analysis,
  Spring Eastern Sectional Meeting of the AMS, Maryland.
- *Conical soliton metrics on Kähler manifolds*, Jan. 2014
  Special Session on Recent Progress in Geometric and Complex Analysis,
  Joint Mathematics Meetings of AMS, Maryland.
- *Connectedness of the space of singular KE metrics on toric varieties*, Apr. 2013
  Graduate Student Topology and Geometry Conference, Notre Dame.

SELECTED OTHER TALKS

- *Nakai type criteria for solving certain general inverse Hessian type equations on projective manifolds*, Oct, 2020
  Differential Geometry Seminar, UC Berkeley (online)
- *(Inverse)-Hessian type equations and positivity in complex algebraic geometry*, June, 2020
  CMI Online Seminar Series.
- *Hermitian-Yang-Mills connections on collapsing K3 surfaces*, May 2018
  Southern California Differential Geometry Seminar,
  UC Riverside.
- *Constant scalar curvature metrics on blow-ups of Kähler surfaces*, Oct. 2017
  Geometry/Topology Seminar, UC Davis
- *Constant scalar curvature metrics on blow-ups of Kähler surfaces*, Sept. 2017
  Differential geometry seminar, UC Berkeley
- *Kähler-Einstein metrics on Fano manifolds*, January 2016
  Geometry/Topology Seminar, UC Davis
- *Kähler-Einstein metrics along the smooth continuity method*, Dec. 2015
  Bay Area Differential Geometry Seminar, MSRI, Berkeley
- *Kähler-Einstein metrics along the smooth continuity method.*, Nov. 2015
  Geometry and Analysis seminar, UC Santa Cruz
- *Kähler-Einstein metrics along the smooth continuity method.*, Sept. 2015
  Differential geometry seminar, UC Berkeley
- *Kähler-einstein metrics along the smooth continuity method*, Jul. 2015
  Chennai Mathematical Institute, Chennai, India

- *Connecting toric manifolds by conical KE metrics*, Apr. 2015
  JHU-UMD Complex geometry seminar, Johns Hopkins
- *Convexity of regular set of singular KE metrics*, Nov. 2014
  Analysis Seminar, Northwestern University
- *Conical soliton metrics on Kähler manifolds*, Sept. 2013
  Complex Analysis and Geometry Seminar, Rutgers University

COURSES TAUGHT

Indian Institute of Science.

- *Riemannian Geometry* Aug 2019, Aug 2021
- *Complex Analysis* Jan 2020
- *Topics in Riemannian Geometry: Cheeger-Colding-Naber theory* Aug 2020
- *Calculus on manifolds* Jan 2021

UC Berkeley.

- *Honors single variable calculus 1B* Fall 2015
- *Honors Multivariable Calculus* Fall 2015, Spring 2018
- *Real Analysis* Spring 2017, Fall 2017, Summer 2018
- *Complex Analysis* Fall 2016

University of Notre Dame.

- *Calculus-2 and Linear algebra and differential equations* Spring 2015
- *Calculus-1 and Calculus-3* Fall 2014

Rutgers University as Instructor.

- *Advanced Calculus for Engineering* Summer 2014
- *Mathematical Theory of Probability* Summer 2011

Rutgers University as TA.

- *Differential Equations for Engineering and Physics* Fall 2011 - Spring 2014
- *Calculus-2 for the Mathematical and Physical Sciences* Spring 2010, Fall 2009
- *Calculus-1 for the Mathematical and Physical Sciences* Fall 2010