

Aaron Naber

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Degrees:

B.S. Mathematics, Pennsylvania State University, 2005.

Ph.D. Mathematics, Princeton University, 2009.

Advisor: Gang Tian; Thesis: Ricci Solitons and Collapsed Spaces.

Employment:

Massachusetts Institute of Technology, Moore Instructor, 2009–2012.

Massachusetts Institute of Technology, Assistant Professor, 2012–2013.

Northwestern University, Associate Professor, 2013–2015.

Northwestern University, Professor, 2015–

Northwestern University, Kenneth F. Burgess Professor of Mathematics, 2015–

Honours:

NSF Graduate Fellowship, 2005–2008.

Princeton Centennial Fellowship, 2008–2009.

NSF Postdoctoral Fellowship, 2009–2013.

ICM 2014 Section Speaker, Geometry.

Sloan Fellow, 2014.

Kenneth F. Burgess Professor of Mathematics, 2015–.

Grants:

NSF Geometric Analysis Grant, DMS 1406259, 2014-2017

NSF Grant: Emphasis Year in Geometric Analysis at Northwestern, DMS 1454077, 2014-2015.

NSF RTG Grant: Analysis, DMS 1502632, 2015-

Organized Activities

Emphasis Year in Geometric Analysis at Fields Institute in Toronto (2015-2016).

AMS Session Organizer: Fullerton, CA (2015).

Emphasis Year in Geometric Analysis at Northwestern (2014-2015): Special Day on Eigenfunctions, Special Day in Complex Geometry, Special Methods in Algebraic Geometry, Workshop on Ricci Curvature, Summer School in Geometric Analysis.

Summer School in Geometric Analysis at MSRI (2014).

Selected Invited Lectures

Department Colloquium: Stanford, NYU Courant, Cambridge University, UWM (2013,2016), Rutgers, Toronto, Princeton (2013,2015,2016), Notre Dame, Northwestern (2013,2016), University of Michigan-Ann Arbor, Stony Brook, Purdue, Montreal.

Geometric Analysis Seminars: Stanford(2015,2016), Princeton (2009,2010,2011,2015), MIT (2009), IMPA (2011), Columbia (2010), Boston University (2011), Notre Dame (2009), UWM (2010), Duke (2009), UC Davis (2008), Johns Hopkins (2010).

Calculus of Variations and PDE, Oberwolfach, 2015, 2016.

Program on Variational Problems in Geometry, Fields Institute, Toronto, 2015.

ICM 2014 Section Speaker: Geometry, 2014

Geometric Analysis Conference, Lisbon, 2014

Hausdorff Colloquium, Bonn University, 2014

Great Lakes Geometry Conference, 2014

Conference for Jim Simon's 70th Birthday, 2013

Geometry Festival, Maryland, 2013

Conference for Blaine Lawson's 70th Birthday, 2012

International Conference on PDE, Oxford, 2012

Conference on Conformal and Kähler Geometry, HIM Paris, 2012

Chern Centennial Conference, MSRI, 2011.

Joint Princeton-Rutgers Geometry Seminar, 2011.

Ricci Soliton Days, PISA, 2011.

Conference on Kähler-Einstein Manifolds, Simon's Center Stony Brook, 2011.

ICM Satellite Conference on PDE and Related Topics, India, 2010.

PRIMA Conference on Geometric Analysis, UBC 2010.

Geometrie im Grossen, Oberwolfach, 2009,2011,2013.

Geometrie, Oberwolfach, 2010,2012,2014.

Ricci Flow and Geometric Analysis Conference, HIM Paris, 2008.

Graduate Summer Schools (organized or lectured at)

- Summer School on PDE, Northwestern, 2016.
- Summer School on Geometric Analysis, Toronto, 2016.
- Summer School on Geometric Analysis, Northwestern, 2015.
- Graduate Summer School on Optimal Transport, Pisa, 2014.
- MSRI Summer Graduate School, Geometry and Analysis, 2014.
- Graduate Summer School on Ricci Curvature, Paris 6, 2014.
- Edinburgh Summer School on Ricci Curvature, 2013.

Publications

- Energy Identity for Stationary Yang-Mills (w/ D. Valtorta), *preprint*, 2016.
- Ricci Curvature and Bochner Formulas for Martingales (w/ R. Haslhofer), *in review*, 2016.
- L^2 Curvature Bounds on Spaces with Bounded Ricci Curvature (w/ W. Jiang), *in review*, 2016
- The Singular Structure and Regularity of Stationary and Minimizing Varifolds (w/ D. Valtorta), *in review*, 2015.
- Rectifiable-Reifenberg and the Regularity of Stationary and Minimizing Harmonic Maps (w/ D. Valtorta), *accepted to Annals of Mathematics*, 2015.
- Weak solutions for the Ricci flow I (w/ R. Haslhofer), *accepted to Journal of European Mathematical Society*, 2015
- Topology and ϵ -regularity Theorems on Collapsed Manifolds with Ricci Curvature Bounds (w/ R. Zhang), *accepted to Geometry and Topology*, 2014.
- Quantitative regularity for p -harmonic maps (w/ D. Valtorta and G. Veronelli), *in review*, 2014.
- Einstein Manifolds and the Codimension Four Conjecture (with J. Cheeger), *Annals of Mathematics* 182, 1093–1165, 2014.
- Structure Theory of Metric-Measure Spaces with Lower Ricci Curvature Bounds I (with A. Mondino), *in review* 2014.
- Quantitative Stratification and the Regularity of Harmonic Map Flow (with J. Cheeger and R. Haslhofer), *accepted to Calculus of variations and PDE*, 2014.
- Volume estimates on the critical sets of solutions to elliptic PDEs (with D. Valtorta), *in review* 2014.
- Characterizations of Bounded Ricci Curvature on Smooth and NonSmooth Spaces *in review*, 2013.
- Sharp estimates on the first eigenvalue of the p -Laplacian with negative Ricci lower bound (with D. Valtorta) *Math. Zeitschrift*, 277 (2014), no. 3-4, 867–891.
- Quantitative Stratification and the Regularity of the Mean Curvature Flow (with J. Cheeger and R. Haslhofer), *Geom. Funct. Anal.* 23 (2013), no. 3, 828–847.

Quantitative Stratification and Critical Sets of Elliptic Equations (with J. Cheeger and D. Valtorta), *accepted to Communications on Pure and Applied Mathematics*, 2012.

New Logarithmic Sobolev Inequalities and an ϵ -regularity Theorem for the Ricci Flow (with H. Hein), *Comm. Pure Appl. Math.* 67 (2014), no. 9, 1543–1561.

Quantitative Stratification and the Regularity of Harmonic Maps and Minimal Currents (with J. Cheeger), *Communications on Pure and Applied Mathematics* Vol 66, Issue 6 (2013), 965–990.

Lower Ricci Curvature, Branching, and Bi-Lipschitz Structure of Uniform Reifenberg Spaces (with T. Colding), *Advances in Mathematics*, Vol 249 (2013), 348–358.

Characterization of Tangent Cones of Noncollapsed Limits with Lower Ricci Bounds and Applications (with T. Colding), *Geometric and Functional Analysis* Vol 23, Issue 1 (2013), 134–148.

Lower Bounds on Ricci Curvature and Quantitative Behavior of Singular Sets (with J. Cheeger), *Inventiones Math.* 191 (2013), 321–339.

Sharp Hölder continuity of tangent cones for spaces with a lower Ricci curvature bound and applications (with T. Colding), *Annals of Mathematics*, 176 (2012), Issue 2, 1173–1229.

Geometric Structures of Collapsing Riemannian Manifolds II: N^* -bundles and Almost Ricci Flat Spaces (with G. Tian), *accepted to J. Reine Angew. Math.*, 2009.

Geometric Structures of Collapsing Riemannian Manifolds I (with G. Tian), *Survey's in Geometric Analysis and Relativity in Honor of Richard Schoen's 60th Birthday*, International Press, 2010.

Noncompact Shrinking 4-Solitons with Nonnegative Curvature, *J. Reine Angew. Math.*, 645 (2010), 125–153.

Some Geometry and Analysis on Ricci Solitons, *preprint*, 2006.