

EXHIBIT A

Kristopher R. Tapp

Department of Mathematics
Saint Joseph's University, 5600 City Ave, Philadelphia, PA 19131
Office: (610) 660-1509, Cell: (267) 912-5926
ktapp@sju.edu

Academic Employment

Saint Joseph's University	8/08 - present
<i>Tenure granted 8/11, promoted to full professor 8/14.</i>	
Suffolk University	7/07 – 7/08
<i>Assistant Professor (tenure track)</i>	
University of Pennsylvania	8/06 – 7/07
<i>Visiting researcher during a sabbatical from Williams</i>	
Williams College	8/03 – 7/07
<i>Assistant Professor (tenure track)</i>	
Bryn Mawr College	8/02 – 7/03
<i>Keck Postdoctoral Fellow</i>	
SUNY at Stony Brook	8/00 – 8/02
<i>VIGRE Postdoctoral Fellow</i>	
Haverford College	6/99 – 6/00
<i>Visiting Assistant Professor</i>	

Education

Ph.D. University of Pennsylvania	conferred 5/99
<i>Thesis Advisor: Wolfgang Ziller</i>	
<i>Research Area: Differential Geometry</i>	
B.A. Grinnell College (<i>with honors, Phi Beta Kappa</i>)	conferred 5/93

Grants

- National Science Foundation Grant DMS-1720590, \$36,200 (co-PI), funded “Representations of Riemannian Geometry” conference at SJU in August 2017.
- National Science Foundation Grant DMS-0902942, \$79,000, awarded 7/09.
- National Science Foundation Grant DMS-0303326, \$75,000, awarded 5/03.
- Mathematics Association of America Grant for hosting undergrad research conference, \$5000, awarded 10/04.
- American Institute of Mathematics Grant to host “Nonnegative Curvature” conference in Palo Alto, 9/07, including full funding for all 30 participants.

Expository Publications

- Symmetry: A Mathematical Exploration (271 page book), *Springer*,
First edition 2012, second edition 2021.
- Differential Geometry of Curves and Surfaces (300+ page textbook), *Springer*,
2016.
- Matrix Groups for Undergraduates (166 page book)
American Mathematics Society, Student Math Library Series, 2005
Second edition including two new chapters, 2016.
- The Mathematics of Measuring Self-Delusion, *Math Horizons*, April 2013
- Review of “Differential Geometry and its Applications” (3 page review)
American Mathematical Monthly, Vol. 116, No. 4, April 2009, pp. 375-377.

Research Publications and Preprints

- Spanning Tree Bounds for Grid Graphs
Under review by Journal of Graph Theory, 2021.
- On Pull-backs of the Universal Connection
To appear in Canadian Mathematical Bulletin, 2022.
- Clustering and Expected Seat-Share for District Maps
To appear in Communications in Statistics – Theory and Methods, 2022.
- Measuring Political Gerrymandering
American Mathematical Monthly, Vol. 126, No. 7 (2019) 593-609.
- Radially Symmetric Connections over Round Spheres
Proc. Amer. Math. Soc., Vol. 146, No. 8 (2018).
- On the Mathematics of the Free-Choice Paradigm
With Peter Selinger, arXiv:1808.06961, submitted 2018.
- A Note on Quasi-Positive Curvature Conditions
With Megan Kerr, Differential Geometry and its Applications, Vol. 34 (2014), 63-79.
- Rigidity for Odd-Dimensional Souls
Geometry and Topology, Vol. 16, issue 2 (2012), 957-962.
- Metrics with Nonnegative Curvature on $S^2 \times \mathbb{R}^4$.
Annals of Global Analysis and Geometry, Vol. 42, No. 1 (2012), 61-77.
- Totally Geodesic Foliations and Doubly Ruled Surfaces in a Compact Lie Group
With Marius Munteanu, Proc. Amer. Math. Soc., Vol. 139, No. 11 (2011), 4121-4135.

- Flats in Riemannian Submersions from Compact Lie Groups
Asian Journal of Mathematics, Vol. 13, No. 4 (2009), 459-464.
- Homogeneous metrics with nonnegative curvature
With Lorenz Schwachhöfer, J. Geometric Analysis, Vol. 19, No. 4 (2009), 929-943.
- Cohomogeneity one disk bundles with normal homogeneous collars
With Lorenz Schwachhöfer, Proceedings London Math Soc, Vol. 99, No. 3 (2009), 609-632.
- Nonnegatively Curved Vector Bundles with Large Normal Holonomy Groups
Proc. Amer. Math. Soc., Vol. 136, No. 1 (2008), 295-300.
- Invariant Metrics with Nonnegative Curvature on $SO(4)$ and other Lie Groups
With Jack Huizenga, Michigan Math. Journal, Vol. 55, Issue 3 (2007), 609-630.
- Invariant Metrics with Nonnegative Curvature on Compact Lie Groups
With Brown, Finck, Spencer, Wu., Canadian Math. Bulletin, Vol. 50, No. 1 (2007), 24-34.
- Obstructions to Positive Curvature on Homogeneous Bundles
Geometriae Dedicata. 119, no. 1 (2006) 105-112.
- Nonnegatively and Positively Curved Invariant Metrics on Circle Bundles
With Krishnan Shankar and Wilderich Tuschmann, Proc. Amer. Math. Soc. 133 (2005) 2449-2459.
- Rigidity for Nonnegatively Curved Metrics on $S^2 \times R^3$
Ann. Global Anal. Geom, Vol. 25 (2004), no. 1, pp. 43-58.
- Quasi-positive Curvature on Homogeneous Bundles
Journal of Differential Geometry, Vol. 65 (2003), pp. 273-287.
- Nonnegatively curved metrics on $S^2 \times R^2$
With Detlef Gromoll, Geometriae Dedicata, Vol. 99 (2003), pp. 127-136.
- Conditions for nonnegative curvature on vector bundles and sphere bundles
Duke Math Journal, Vol. 116 (2003), no. 1, pp. 77-101.
- Finiteness theorems for submersions and souls
Proc. Amer. Math. Soc., Vol. 130 (2002), no. 6, pp. 1809-1817.
- Bounded Riemannian submersions
Indiana Univ. Math. J., Vol. 49, no. 2 (Summer) 2000, pp. 637-654.
- Volume growth and holonomy in nonnegative curvature
Proc. Amer. Math. Soc. 127 (1999), no. 10, pp. 3035-3041.

All publications and preprints are available at:

<https://sites.google.com/sju.edu/ktapp>

Presented Research Talks

Connecticut College Math Colloquium (remote)	2/22
MGGG Trees working group (Tufts University, remote)	10/21
AMS Special Session on the Mathematics of Redistricting, Charlottesville	3/20
The University of Arizona Conference on Redistricting, Tucson	10/18
Geometry of Redistricting Workshop, San Francisco	2/18
Math Colloquium, Wesleyan University	10/17
Bi-College Mathematics Colloquium (Haverford+Bryn Mawr)	11/14
Undergraduate Math Colloquium, University of Pennsylvania	11/14
University Autónoma Madrid Geometry Seminar	7/13
Swarthmore College Mathematics Colloquium	9/12
Lehigh University Geometry and Topology Conference	6/12
Fairfield University Summer REU Colloquium	7/11
Geometry and Topology Seminar, University of Pennsylvania	2/09
Differential Geometry Workshop in Cuernavaca, Mexico	5/08
Lie Theory Conference in Cordoba, Argentina	11/07
AIM Positive Curvature Workshop in Palo Alto, CA	9/07
Math Colloquium, Bryn Mawr College	2/07
Homogeneous Space Conference, Tucson, AZ	3/07
Geometry Seminar, University of Pennsylvania	9/06
Undergraduate Colloquium, University of Pennsylvania	11/06
Curvature and Global Shape Conference, Muenster, Germany	7/05
Dartmouth College Geometry Seminar	5/05
Valley Geometry Seminar, University of Massachusetts	3/04
AMS Special session on Ricci Curvature, CUNY, NY	1/04
Curvature and Global Shape Conference, Muenster, Germany	7/03
Geometry Seminar, Muenster University, Germany	5/03
Geometry Reading Group, University of Pennsylvania	3/03
Geometry Seminar, Rutgers University	12/02
Geometry Reading Group, University of Pennsylvania	10/02
Math Colloquium, Bryn Mawr College	10/02
AMS Special Session on Curvature and Topology in Montreal (Speaker and co-organizer of conference)	5/02
Southeastern Geometry Festival, Athens, GA	3/02
Geometry Seminar, Princeton University	10/01
Geometry Seminar, CUNY Graduate Center	9/01
Differential Geometry Conference at Oberwolfach, Germany	6/01
Geometry Seminar, University of Augsburg, Germany	6/01

AMS Special Session on Ricci Curvature in Hoboken, NJ	4/01
Geometry and Topology Seminar, SUNY Stony Brook	11/00
Math Colloquium, Haverford College	11/00
Nonnegative Curvature Seminar, University of Pennsylvania	11/99
Math Colloquium, Bryn Mawr College	10/99
Geometry Seminar, University of Bonn, Germany	6/99
Differential Geometry Conference at Oberwolfach, Germany	6/99
Joint Meetings in San Antonio: AMS session on Geometry	1/99
Geometry Seminar, Rutgers University	9/98
Lehigh University Geometry and Topology Conference	6/98