ANAND DEOPURKAR

Curriculum Vitae

Department of Mathematics
Columbia University
2990 Broadway, New York, NY 10027

anandrd@math.columbia.edu
+1 (617) 276-6918
http://math.columbia.edu/∼anandrd

POSITIONS

2012– J.F. Ritt Assistant Professor, Columbia University

EDUCATION

2008–12 Harvard University, Ph.D.
Adviser: Joseph Harris.

2004–08 Massachusetts Institute of Technology (MIT), S.B.
Major subject: Mathematics with Computer Science.

PUBLICATIONS AND PREPRINTS

To appear ◇ *Toward GIT stability of syzygies of canonical curves* (with M. Fedorchuk and D. Swinarski). Algebraic Geometry (Foundation Compositio Mathematica).

2015 ◇ *The Picard rank conjecture for the Hurwitz spaces of degree up to five* (with A. Patel). Algebra & Number Theory, 9(2):459–492, 2015.

2014 ◇ *Gröbner techniques and ribbons* (with M. Fedorchuk and D. Swinarski). Albanian Journal of Mathematics, 8(1):55–70, 2014.

◇ *Sharp slope bounds for sweeping families of trigonal curves* (with A. Patel). Mathematical Research Letters, 20(3):869–884, 2013.

◇ *Modular compactifications of the space of marked trigonal curves*. Advances in Mathematics, 248(0):96 – 154, 2013.

2013 ◇ *Compactifications of Hurwitz spaces*. International Mathematics Research Notices, 2014(14):3863–3911, 2013.

2012 ◇ *Alternate compactifications of Hurwitz spaces*. Thesis, Harvard.

Submitted ◇ *Covers of stacky curves and limits of plane quintics*. arXiv:1507.03252 [math.AG].

Preprint ◇ *Green's canonical syzygy conjecture for ribbons*. arXiv:1510.07755 [math.AG].

Publications and preprints (continued)

Preprint
- ◇ *Class of the Hodge eigenbundle using orbifold Riemann–Roch*. Appendix to Cyclic covering morphisms on $\overline{M}_{0,n}$ by M. Fedorchuk.

In progress
- ◇ *On the GIT of syzygies of canonical genus 7 curves*.
- ◇ *Anti-canonical embeddings of tropical del Pezzo surfaces* (with M. A. Cueto).

Expository

2009
- ◇ *An introduction to intersection homology*. Minor thesis, Harvard.

2007
- ◇ *Normalization of algebraic varieties*. MIT Undergraduate Journal of Mathematics, Volume 9.

Grants and awards

2015
- ◇ American Institute for Mathematics workshop funding for *Stability and moduli spaces* (with M. Fedorchuk, I. Morrison, and X. Wang).

2014
- ◇ Award for excellence in teaching, Columbia departmental award.

2008
- ◇ Jon A. Bucsela prize, MIT departmental award given to the top graduating mathematics major.

2006
- ◇ Rogers prize, MIT departmental award for summer research.

2004, 05, 07
- ◇ William Lowell Putnam competition: Rank 16–25 (2007), Honorable mention (2004, 2005).

2003, 04
- ◇ International Mathematical Olympiad: Silver medal (2004), Bronze medal (2003).

Teaching

Graduate

2014
- ◇ Topics in algebraic geometry: *Moduli of Curves* (Columbia).

Advanced Undergraduate

2015
- ◇ Undergraduate seminar: *Young Tableaux in Algebra and Geometry* (Columbia).

2013, 14
- ◇ *Modern Algebra 1 and 2* (Columbia).

2011
- ◇ Course assistant for *Algebraic Curves* (Harvard).

Undergraduate

2009, 14, 15
- ◇ *Calculus 1*: Introductory one variable calculus (Harvard, Columbia).

2012, 13
- ◇ *Calculus 3*: Multivariable differential calculus (Harvard, Columbia).

Teaching (continued)

2010, 12 ◇ *Calculus 2*: Series and differential equations (Harvard, Columbia).

2012 ◇ *Linear Algebra* (Harvard).

Invited Talks and Presentations

Conferences

2016 ◇ Joint mathematics meetings, Seattle, WA (Higher genus curves and fibrations of higher genus curves in mathematical physics and arithmetic geometry II). *Picard groups of Hurwitz spaces* (Upcoming).

◇ Joint mathematics meetings, Seattle, WA (Moduli spaces in algebraic geometry I). *Limits of plane quintics via covers of stacky curves* (Upcoming).

2015 ◇ BC-Northeastern algebraic geometry conference, Boston, MA. *Limits of plane quintics via covers of stacky curves*.

◇ SIAM applied algebraic geometry conference, Daejeon, Korea. *Syzygies of canonical curves and the geometry of* $\overline{M}_g$.

2014 ◇ Mathematisches Forschungsinstitut Oberwolfach, Germany. *GIT stability of syzygies of curves* (mini talk).

2013 ◇ Conference on moduli and birational geometry, Postech, Pohang, Korea. *Towards GIT stability of syzygies of canonical curves*.

Research Seminars

2015 ◇ Purdue University, West Lafayette, IN. *Syzygies, GIT, and the moduli space of curves*.

◇ Ohio State University, Columbus, OH. *Limits of plane curves via stacky branched covers*.

◇ Harvard/MIT, Cambridge, MA. *Syzygies, GIT, and the log MMP for* $\overline{M}_g$.

◇ Courant Institute, New York University, New York, NY. *Picard groups of Hurwitz spaces*.

◇ Indian Institute for Science Research and Education, Pune, India. *The birational geometry of* $\overline{M}_g$.

◇ Stony Brook University, Stony Brook, NY. *Syzygies of canonical curves and birational geometry of* $\overline{M}_g$.

2014 ◇ University of Michigan, Ann Arbor, MI. *GIT stability of syzygies of canonical curves*.

◇ Yale University, New Haven, CT. *GIT stability of syzygies of canonical curves*.

◇ Boston College, Boston, MA. *Toward GIT stability of syzygies of canonical curves*.

Invited Talks and Presentations (continued)

2013 ◇ AMS sectional meeting (Geometry of algebraic varieties), Philadelphia, PA. *Toward GIT stability of syzygies of canonical curves*.

◇ Stanford University, Palo Alto, CA. *Alternate compactifications of Hurwitz spaces*.

◇ Princeton University, Princeton, NJ. *Compactifying spaces of branched covers*.

2012 ◇ Rice University, Houston, TX. *Alternate compactifications of Hurwitz spaces*.

2011 ◇ Harvard/MIT, Cambridge, MA. *Compactifications of Hurwitz spaces*.

◇ Columbia University, New York, NY. *Compactifications of Hurwitz spaces*.

◇ SUNY Stony Brook, Stony Brook, NY. *Compactifications of Hurwitz spaces*.

◇ Brown University, Providence, RI. *Compactifications of Hurwitz spaces*.

Poster Presentations

2015 ◇ Summer institute in algebraic geometry, Salt Lake City, UT. *Limits of plane quintics via covers of stacky curves*.

2013 ◇ AGNES, Boston College, Boston, MA. *Sharp slope bounds for sweeping families of trigonal curves*.

2011 ◇ A celebration of algebraic geometry (conference for the 60th birthday of Joe Harris), Harvard, Cambridge, MA. *Birational geometry of the space of marked trigonal curves*.

Service

◇ Referee work for *Crelle*, *Manuscripta mathematica*, *Advances in geometry*.

◇ Co-organizing the workshop *Stability and moduli spaces* at the American Institute of Mathematics (scheduled for January 2017).

2016 ◇ Co-organizing the graduate student algebraic geometry seminar at Columbia (Spring 2016).

2015 ◇ Conducted the Putnam preparation sessions at Columbia.

◇ Supervised an undergraduate independent reading course.

2014 ◇ Gave expository sessions for graduate students in the *Workshop on birational geometry and stability of moduli stacks and spaces of curves* in Hanoi, Vietnam.

2013, 14 ◇ Served on the thesis defense committees of Zachary Maddock and Xuanyu Pan at Columbia.

2013 ◇ Co-organized the poster session at AGNES at Boston College.

2010, 11 ◇ Organized the student algebraic geometry seminar at Harvard/MIT.

REFERENCES

◇ Joseph Harris, Harvard University
1 Oxford Street, Cambridge, MA 02139, USA.
Email: harris@math.harvard.edu, Phone: (617) 495-2171.

◇ Brendan Hassett, Brown University
151 Thayer Street, Providence, RI 02912, USA.
Email: bhassett@math.brown.edu, Phone: (401) 863-7961.

◇ Johan de Jong, Columbia University
2990 Broadway, New York, NY 10027, USA.
Email: dejong@math.columbia.edu, Phone: (212) 854-2671.

◇ Davesh Maulik, MIT
77 Massachusetts Avenue, Cambridge MA 02142, USA.
Email: dmaulik@math.columbia.edu, Phone: (617) 253-1796.

Teaching

◇ Patrick Gallagher, Columbia University
2990 Broadway, New York, NY 10027, USA.
Email: pxg@math.columbia.edu, Phone: (212) 854-4346.