

YAJNASENI DUTTA

CURRICULUM VITAE

EMPLOYMENT/POSITIONS

- Hausdorff Postdoc. **Mentor:** Prof. Daniel Huybrechts.
Mathematical Institute, University of Bonn. September 2019-present
- Visiting Scholar. **Host:** Prof. Nero Budur.
Katholieke Universiteit Leuven. October 2019–December 2019
- Teaching Assistant: *Calculus (all levels), Linear Algebra, Foundations of Higher Math, Intro to Topology, Graph Theory.* Northwestern Univ. Fall 2015–Spring 2018
- Grader: *Differential Topology.* Northwestern Univ. Winter 2015
- Grader: *Algebraic Geometry.* Northwestern Univ. Fall 2014
- Teaching Assistant: *Precalculus.* Univ. of Illinois at Chicago. Fall 2013

EDUCATION

- **Northwestern University, USA** Sep 2014–Aug 2019
Ph.D., Mathematics. **Advisor:** Prof. Mihnea Popa.
- **University of Illinois at Chicago, USA** Aug 2013–continued at NU
PhD, Mathematics.
- **Chennai Mathematical Institute, India** Aug. 2011–Jul. 2013
M.Sc., Mathematics.
- **Chennai Mathematical Institute, India** Aug. 2008–Jul. 2011
B.Sc., Mathematics and Computer Sc.

RESEARCH INTERESTS

- Birational Geometry.
- Higher dimensional varieties.
- Hodge ideals, Hodge theory and Hodge module theory.

PUBLICATIONS

- **Vanishing for Hodge ideals on toric varieties** Jul. 2018
Mathematische Nachrichten. vol. 293, 2020. DOI:[10.1002/mana.201800363](https://doi.org/10.1002/mana.201800363)
- **Effective generation and twisted weak positivity of direct images.** With T. Murayama. Dec. 2017
Algebra and Number theory. vol. 13, no. 2, 2019. DOI:[10.2140/ant.2019.13.425](https://doi.org/10.2140/ant.2019.13.425)
- **On the effective freeness of the direct images of pluricanonical bundles.** Jan. 2017
To appear in *Annales de l'institut Fourier*. Preprint available at arXiv: 1701.08830.
- **Some Effective Problems in Algebraic Geometry and their Applications.** Jun. 2019
PhD Thesis.

AWARDS AND FELLOWSHIPS

- **Best Thesis in Mathematics, Northwestern University** May 2019
- **Gelfand Award, Northwestern University** May 2018
Awarded to the Ph.D. student who has contributed most to the department.

- **Research Assistantship** Winter 2018
- **Northwestern University Graduate Fellowship** 2014-2015, 2018-2019
- **The University Fellowship, University of Illinois at Chicago** 2013-2014
 aimed at recruiting outstanding students newly admitted to PhD programs at UIC.
- **Scholarship for Higher Education, Department of Science and Technology, Govt. of India** 2008-2011
 A component of Innovation in Science Pursuit for Inspired Research (INSPIRE)
- **Undergraduate and Graduate Stipend, Chennai Mathematical Institute** 2008-2013

INVITED/UPCOMING TALKS

- Singularities and Algebraic Geometry, Tuy Hoa, Vietnam April. 2020
- Seminar on Applications of Hodge modules to birational geometry, HU Berlin, Germany Jan. 2020
- Oberseminar “Algebra und Theoretische Mathematik”, Chemnitz, Germany Nov. 2019
- Seminar Number Theory and Algebraic Geometry, KU Leuven, Belgium Oct. 2019
- Algebraic Geometry and Commutative Algebra Seminar, University of Notre Dame 1 May. 2019
- Algebraic Geometry Seminar, Johns Hopkins University 5 Mar. 2019
- Algebraic Geometry Seminar, Univ. of Illinois, Urbana Champaign 27 Nov. 2018
- D-modules in birational geometry – Short course, Univ. of Chicago 13, 14 Nov. 2018
- Lunch talk in Women@AGNES, Brown University, USA Sep. 2018
- Graduate Student Conference in Algebra, Geometry, and Topology, Temple University, USA. Jun. 2018
- Algebraic geometry Seminar, Univ. of Chicago, USA 16 May 2018
- Algebra and Combinatorics Seminar, Loyola Univ., USA 18 Apr. 2018
- CMI Seminar, Chennai Mathematical Inst., India 3 Dec. 2017
- Algebraic Geometry Seminar, Washington University, USA 2 Oct. 2017

PROFESSIONAL ACTIVITY

- Refereed an article for PRIMS, Kyoto.
- Co-organised MAGGC (Midwest Algebraic Geometry Graduate Conference), funded partially by the NSF, May 25-27 2018, University of Illinois at Chicago.
- Co-organised Algebraic Geometry Student Seminar, Fall 2017 - Spring 2018, Northwestern University.
- Served as a panel member for TA seminar for 2nd Year Grads. Nov. 7, 2017, Northwestern University.
- Volunteered for GROW (Graduate Research Opportunities for Women), a conference aimed at talented women-identified undergraduates interested in graduate school in the mathematical sciences, Oct. 13-15, 2017, Northwestern University
- Served as a panel member for “graduate school applications” for NUAWM (Northwestern University Association for Women in Mathematics), an undergraduate club. Winter 2017, Northwestern University.
- Organised weekly learning Seminar on Hodge modules, Fall 2016 - Spring 2017, Northwestern University.
- Organised weekly learning seminar on Fourier-Mukai Transforms, Spring 2015, Northwestern University.

SEMINARS, WORKSHOPS AND CONFERENCES (ATTENDED/UPCOMING)

- Arithmetic and Algebraic Geometry Ann Arbor, University of Michigan, USA, Aug 2019.
- Recent Progress in Moduli Theory, MSRI, Berkeley, May 2019.
- Hodge ideals and mixed Hodge modules, Angers, France, Apr. 2019.
- Connections for Women: Derived Algebraic Geometry, Birational Geometry and Moduli Spaces, MSRI, Berkeley, Jan. 2019.
- Introductory Workshop: Derived Algebraic Geometry and Birational Geometry and Moduli Spaces, MSRI, Berkeley, Feb. 2019.
- Algebraic Geometry Northeastern Series, Brown Univ. and Univ. of Massachusetts, Amherst, Sep. 2018 and Nov. 2016 (resp.). **Presented poster at Brown Univ.**
- Summer school on Mixed Hodge Modules in Birational Geometry, Johannes Gutenberg University Mainz, Germany, Jul. 2018. **Presented poster.**
- Complex analytic and differential geometry, a Conference in Honour of Jean Pierre Demailly at the Institut Fourier, Grenoble, France, Jun. 2017.
- Higher Dimensional Algebraic Geometry summer school and conference at University of Utah, Jul. 2016
- Local and Global Methods in Algebraic Geometry, a conference in Honour of Lawrence Ein's 60th birthday. University of Illinois at Chicago, May 2016.
- Workshop on unramified cohomology, derived categories, and rationality, University of Utah, Feb. 2016.
- AMS Summer Institute in Algebraic Geometry, University of Utah, Jul. 2015.
- II Latin American School of Algebraic Geometry and Applications, Cabo Frio, Brazil, May 2015.