DEBADITYA RAYCHAUDHURY

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PERSONAL INFORMATION

Date and place of birth: 24 June, 1992, Kolkata, India
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Department of mathematics,
University of Kansas,
Snow Hall, 1460 Jayhawk Blvd.
Lawrence, KS 66045-7594.
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RESEARCH INTEREST

My research is focused on Algebraic Geometry. More specifically, I am interested in problems on syzygies of projective varieties, deformation theory of finite morphisms and moduli of surfaces of general type.

EMPLOYMENT

Fields Institute for Research in Mathematical Sciences — Toronto, ON, Canada
Simons Postdoctoral Fellow — 2021 - 2022

University of Kansas — Lawrence, KS, USA
Graduate Teaching Assistant — 2015 - 2021

EDUCATION

University of Kansas — Lawrence, KS, USA
Ph.D. Mathematics — August 2015 - July 2021
Advisor: Professor Purnaprajna Bangere

University of Kansas — Lawrence, KS, USA
M.A. Mathematics — August 2015 - December 2016

Chennai Mathematical Institute — Chennai, TN, India
M.Sc. Mathematics — August 2013 - July 2015

Chennai Mathematical Institute — Chennai, TN, India
B.Sc. Mathematics and Computer Science — August 2010 - July 2013

PUBLICATIONS AND PREPRINTS

1. Deformations of irregular quadruple Galois canonical covers of smooth surface scrolls with applications to moduli of surfaces with $K^2 = 4p_g - 8$ (with P. Bangere, F.J. Gallego, and J. Mukherjee), *in preparation.*
2. Deformation of morphisms, varieties of low codimension and asymptotic limits (with P. Bangere, F.J. Gallego, and J. Mukherjee), submitted, arXiv:2012.01682.
3. Smoothing of multiple structures on embedded Enriques manifolds (with J. Mukherjee), to appear in *Math. Z.*, arXiv:2002.05846.
4. K3 carpets on minimal rational surfaces and their smoothings (with P. Bangere, and J. Mukherjee), *Internat. J. Math.* 32 (2021), no. 6, 2150032, 20 pp., arXiv:2006.16448.
5. Remarks on projective normality for certain Calabi–Yau and hyperkähler varieties (with J. Mukherjee), *J. Pure Appl. Algebra* 224 (2020), no. 10, 106383, 19 pp., arXiv:1902.00649.
6. On the projective normality and normal presentation on higher dimensional varieties with nef canonical bundle (with J. Mukherjee), *J. Algebra* 540 (2019), 121–155, arXiv:1810.06718.

TALKS/ POSTER PRESENTATIONS

Research talks

1. (Lightning talk) "Smoothing of multiple structures on embedded Enriques manifolds" May 2020
   Midwest Algebraic Geometry Graduate Conference (Online)
   Hosted by University of Illinois Chicago, Chicago, IL
2. "On the projective normality and normal presentation on varieties with nef canonical bundle" April 2020
   URiCA-KUMUNUjr; University of Nebraska-Lincoln, Lincoln, NE (**cancelled**)
3. "Deformations of Galois canonical covers of surfaces of minimal degree" November 2019
   Geometry Seminar; University of Kansas, Lawrence, KS
4. "Very ampleness and projective normality on higher dimensional varieties" March 2019
   Midwest Algebraic Geometry Graduate Conference; University of Illinois Chicago, Chicago, IL
5. "Very ampleness on Hyperkähler fourfolds of deformation type $K3^{[2]}$" September 2018
   Geometry Seminar; University of Kansas, Lawrence, KS

Poster presentations

1. "Deformations of bi-double Galois canonical covers of surfaces of minimal degree" November 2019
   Western Algebraic Geometry Symposium; University of Utah, UT
2. "On the projective normality and normal presentation on varieties with nef canonical bundle" February 2018
   Southwest Local Algebra Meeting; University of Arkansas, Fayetteville, AR

TEACHING EXPERIENCES (UNIVERSITY OF KANSAS)

1. *Instructor of record* for MATH 127 (Calculus III) Summer 2018
2. *Instructor of record* for MATH 126 (Calculus II) Summer 2019
3. *Recitation instructor* for MATH 126 (Calculus II) Spring 2019, Fall 2020
4. *Instructor of record* for MATH 125/197 (Calculus I Enhanced) Spring 2018, Fall 2019, Spring 2020
5. *Recitation instructor* for MATH 125 (Calculus I) Spring 2017, Fall 2017
6. *Instructor of record* for MATH 115 (Applied Calculus I) Fall 2015, Spring 2016, Fall 2016
7. *Instructor of record* for MATH 104 (Precalculus) Fall 2018

AWARDS AND HONORS

1. Charles J. and Mary Pat Himmelberg Graduate Student Award Spring 2020
   University of Kansas, Lawrence
   (Awarded annually to two or three mathematics graduate students for academic merit)
2. Selected for MSRI summer graduate school on algebraic curves (**cancelled**) Summer 2020
   Hainan, China
3. Nominated for Florence Black Award for Excellence in Teaching Spring 2018, 2019, 2021
   University of Kansas, Lawrence
   (An award limited to 5 nominees and 1 winner per year)
4. U.G. Mitchell Graduate Summer Scholarship Summer 2020, Summer 2018
   University of Kansas, Lawrence
5. Graduate Scholarship 2013 - 2015
   Chennai Mathematical Institute, India

6. INSPIRE Scholarship for Higher Education (SHE) 2010 - 2013
   Department of Science and Technology, Govt. of India

Other Conferences and Workshops Attended

1. I-70 Algebraic Geometry Symposium, *University of Missouri-St. Louis, St. Louis, MO* October 2018
2. Midwest Algebraic Geometry Graduate Conference (MAGGC 2018), May 2018
   University of Illinois at Chicago, Chicago, IL
3. I-70 Algebraic Geometry Symposium, *University of Kansas, Lawrence, KS* November 2017
4. Hodge Theory, Moduli and Representation Theory, *Stony Brook University, NY* August 2017
5. 42nd Annual Spring Lecture Series on Geometry, *University of Arkansas, Fayetteville, AR* March 2017
6. I-70 Algebraic Geometry Symposium, *University of Missouri, Columbia, MO* November 2016
7. KUMUNU 2016, *University of Kansas, Lawrence, KS* October 2016
8. KUMUNU 2015, *University of Missouri, Columbia, MO* October 2015
9. AIS (Advanced Instructional School) Schemes and Cohomology December 2014
   Kerala School of Mathematics, India

Service

1. *Reviewer*; zbMATH 2020 - Present
2. *Co-organizer*; Geometry Seminar, *University of Kansas, Lawrence, KS* Fall 2019 - Spring 2021
3. *Secretary*; Graduate Student Organization, *University of Kansas, Lawrence, KS* Fall 2019 - Spring 2020
   – Collaborated with chapter president to ensure successful execution of events
   – Organized Graduate Student Seminars

Computing and Languages

Programming Languages: C++, Python, Haskell, Java, Mathematica
Languages: Fluent in English (second language), Bengali (native)