

SHUBHODIP MONDAL

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University of British Columbia

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EMPLOYMENT *Postdoctoral fellow* September 2023 - Present
Mentor(s): Kai Behrend, Jim Bryan and Sujatha Ramdorai
University of British Columbia, Vancouver, Canada

Postdoctoral fellow September 2022 - August 2023
Mentor(s): Peter Scholze
Max Planck Institute for Mathematics, Bonn, Germany

EDUCATION *Ph.D.* in mathematics, September 2017 - August 2022
Advisor: Bhargav Bhatt
Thesis: $\mathbf{G}_a^{\text{perf}}$ -modules and de Rham cohomology
University of Michigan, Ann Arbor, USA.

M. Math, July 2015 - July 2017
Indian Statistical Institute, Bangalore, India.
First Division with Distinction.

B. Math (Hons.), July 2012 - July 2015
Indian Statistical Institute, Bangalore, India.
Honours with Distinction.

RESEARCH INTERESTS Arithmetic algebraic geometry, homotopy theory.

PUBLICATIONS *A computation of prismatic Dieudonné module*, Acta Arith. 205 (2022), no. 1, 8796.
Reconstruction of the stacky approach to de Rham cohomology, Math. Z. 302 (2022), no. 2, 687693.

On endomorphisms of the de Rham cohomology functor (with Shizhang Li), to appear in Geometry and Topology.

$\mathbf{G}_a^{\text{perf}}$ -modules and de Rham cohomology, Adv. Math. 409 (2022), Paper No. 108691, 72 pp.

Dieudonné theory via cohomology of classifying stacks, Forum of Mathematics, Sigma, Vol. 9 (2021), e81.

Surjectivity of maps induced on matrices by polynomials and entire functions, The American Mathematical Monthly Vol. 124, No. 3. (2017)

PREPRINTS *p-typical curves on p-adic Tate twists and de Rham-Witt forms* (with Sanath K. Devalapurkar), available at [arXiv:2309.16623](https://arxiv.org/abs/2309.16623) (2023)

Unipotent homotopy theory of schemes (with Emanuel Reinecke), available at [arXiv:2302.10703](https://arxiv.org/abs/2302.10703) (2023)

On Postnikov completeness for replete topoi (with Emanuel Reinecke), available at arXiv:2210.14146 (2022)

Ind-étale vs formally étale (with Alapan Mukhopadhyay), available at arXiv:2209.09392 (2022)

**SELECTED
TALKS**

Dieudonné theory (2 lectures), Geometric Langlands seminar, University of Chicago. 2023

Affine stacks, Algebraic geometry seminar, University of British Columbia. 2023

Arbeitsgemeinschaft on syntomic cohomology, Recent Advances in Algebraic K-theory, IHES. 2023

Unipotent homotopy theory of schemes, Algebraic geometry and cohomology in mixed characteristic, Northwestern University. 2023

Unipotent homotopy theory of schemes, Séminaire d'Arithmétique et de Géométrie Algébrique, Université Paris-Saclay. 2023

Unipotent homotopy theory of schemes, Arithmetic/Algebraic Geometry seminar, Harish-Chandra Research Institute. 2023

Unipotent homotopy theory of schemes, Réseau des Étudiants en Géométrie Algébrique, Université Paris-Saclay. 2023

Categorical local Langlands, Arithmetische Geometrie-Oberseminar (ARGOS), Universität Bonn. 2023

Unipotent homotopy theory of schemes, AG seminar, University of Regensburg. 2022

Unipotent homotopy theory of schemes, Algebra/Topology seminar, University of Copenhagen. 2022

On p -adic de Rham cohomology, University of Chicago Number Theory seminar, University of Chicago. 2022

On p -adic de Rham cohomology, Algebra/Topology Seminar, University of Copenhagen. 2022

On p -adic de Rham cohomology, RTG Number theory, University of Michigan. 2021

On p -adic de Rham cohomology, Topology seminar, Northwestern University. 2021

Dieudonné theory via cohomology of classifying stacks, Forschungsseminar Arithmetische Geometrie, Technische Universität München. 2021

Dieudonné theory via cohomology of classifying stacks, Graduate Student Conference in Algebra, Geometry, and Topology, Temple University. 2021

The monodromy of Kodaira-Parshin families, Learning seminar on Lawrence–Venkatesh “Diophantine problems and p -adic period mappings”, DRAGON seminar. 2021

Dieudonné theory via cohomology of classifying stacks, RTG number theory seminar, University of Michigan. 2020

Cohomology of $B(\text{Ker})$ and sheaves on the circle, Learning seminar on the filtered circle, DRAGON seminar. 2020

Ind-étale vs Formally étale, Student commutative algebra seminar, University of Michigan 2019

A stacky approach to crystals (following Drinfeld), Preprint algebraic geometry seminar, University of Michigan. 2019

Deligne’s Theorem, Arithmetic Geometry Seminar, University of Michigan. 2018

Total p-differentials on schemes over \mathbf{Z}/p^2 (following Dupuy-Katz-Rabinoff-Brown),
Preprint algebraic geometry seminar, University of Michigan. 2018

Vanishing theorems of Kodaira type for Witt canonical sheaves (following Tanaka),
Preprint algebraic geometry seminar, University of Michigan. 2017

TEACHING

Math 100 (Calculus I), University of British Columbia. Winter term 1, 2023

Math 116 (Calculus II), University of Michigan. Winter 2022

Math 115 (Calculus I), University of Michigan. Fall 2020

Math 116 (Calculus II), University of Michigan. Winter 2020

Math 116 (Calculus II), University of Michigan. Fall 2019

Math 116 (Calculus II), University of Michigan. Winter 2019

Grader for Math 596 (Complex analysis), University of Michigan. Fall 2018

Tutor in Math Learning Center, University of Michigan. Fall 2018

Math 115 (Calculus I), University of Michigan. Winter 2018

Math 115 (Calculus I), University of Michigan. Fall 2017

Probabilistic Methods, Indian National Mathematical Olympiad Training Camp, Bangalore, India. 2015

SEMINARS

CO-ORGANISED

Reading and learning seminar on perfectoid spaces, co-organised with Sujatha Ramdurai, University of British Columbia. 2023

Topological Hochschild Homology and integral p-adic Hodge theory (following Bhatt-Morrow-Scholze), co-organised with Shizhang Li, University of Michigan. 2020

Chromatic homotopy theory, Student seminar, University of Michigan. 2019

Nonexistence of abelian schemes over integers, Student seminar, co-organised with Peter Dillery, University of Michigan. 2019

Perfectoid spaces and p-adic Hodge theory (following Scholze), Student seminar, University of Michigan. 2018

AWARDS

Indu and Gopal Prasad Family Fund, University of Michigan. 2021

Rackham International Student Fellowship, University of Michigan. 2018-2019

P.C. Panesar Gold Medal, Indian Statistical Institute, for academic performance in M. Math. 2017

Michigan Mathematics Graduate Fellowship, University of Michigan. 2017-2020

Inspire Scholarship, Dept. of Science and Technology, Govt. of India. 2012-2017