

SHUBHODIP MONDAL

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EMPLOYMENT *Assistant Professor of Mathematics* August 2025 - Present
Purdue University, West Lafayette, USA

Postdoctoral fellow September 2023 - August 2025
University of British Columbia, Vancouver, Canada
On leave from January to July, 2024.

Member January 2024 - July 2024
Institute for Advanced Study, Princeton, USA

Postdoctoral fellow September 2022 - August 2023
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 and P.C. Panesar Gold Medal
for academic performance.

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

RESEARCH INTERESTS Arithmetic algebraic geometry, homotopy theory.

PREPRINTS *Zeta function of F -gauges and special values*, available at [arXiv:2501.05027](https://arxiv.org/abs/2501.05027) (2025)

Affine stacks and derived rings (with Akhil Mathew), available at <https://personal.math.ubc.ca/~smondal/papers/affinestacks.pdf> (2024)

Dieudonné theory via cohomology of classifying stacks II, available at [arXiv:2405.12967](https://arxiv.org/abs/2405.12967) (2024)

PUBLICATIONS *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), to appear in *Advances in Mathematics*.

Unipotent homotopy theory of schemes (with Emanuel Reinecke), available at [arXiv:2302.10703](https://arxiv.org/abs/2302.10703) (2023), to appear in *Journal of American Mathematical Society*.

On Postnikov completeness for replete topoi (with Emanuel Reinecke), *Homology, Homotopy and Applications*, 27 (2025), no. 1.

Ind-étale vs formally étale (with Alapan Mukhopadhyay), Bulletin of the London Mathematical Society, 57 (2025), no. 4.

A computation of prismatic Dieudonné module, Acta Arithmetica, 205 (2022), no. 1, 8796.

Reconstruction of the stacky approach to de Rham cohomology, Mathematische Zeitschrift, 302 (2022), no. 2, 687693.

On endomorphisms of the de Rham cohomology functor (with Shizhang Li), Geometry and Topology 28 (2024) 759-802

$\mathbf{G}_a^{\text{perf}}$ -modules and de Rham cohomology, Advances in Mathematics, 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)

INVITED TALKS

Upcoming, Arithmetic Geometry conference in Shenzhen. Nov 2025

Unipotent homotopy groups of Calabi-Yau varieties, New Directions in Group Theory and Triangulated Categories, Online seminar series. June 2025

Stacky approach to Dieudonné theory (2 lectures), Workshop on geometry and prismatic cohomology, University of California, Berkeley. May 2025

Zeta function of F -gauges and special values, AMS Sectional Meeting (K -theory), University of Kansas. March 2025

Zeta function of F -gauges and special values, Algebra and Number Theory seminar, University of Calgary. Feb 2025

Group schemes and p -adic Hodge theory, Colloquium, Purdue University. Jan 2025

Unipotent homotopy theory of schemes, Canadian Mathematical Society, Winter Meeting (Vancouver). Dec 2024

Dieudonné theory via cohomology of classifying stacks, Number Theory seminar, Caltech. Nov 2024

Unipotent homotopy theory of schemes, Algebra seminar, University of Southern California. Nov 2024

Dieudonné theory via cohomology of classifying stacks, Algebraic Geometry seminar, University of Toronto. Nov 2024

Dieudonné theory via cohomology of classifying stacks, Algebraic topology seminar, University of Chicago. Oct 2024

Dieudonné theory via cohomology of classifying stacks, Topology seminar, Northwestern University. Oct 2024

Dieudonné theory via cohomology of classifying stacks, Number theory and Algebraic Geometry seminar, Simon Fraser University. Sept 2024

Dieudonné theory via cohomology of classifying stacks, Tata Institute of Fundamental Research, Mumbai. July 2024

Dieudonné theory via prismatic F -gauges, Number Theory and Representation Theory seminar, University of Maryland. April 2024

Dieudonné theory via prismatic F -gauges, Algebraic geometry seminar, University of British Columbia. March 2024

p -typical curves on p -adic Tate twists and de Rham-Witt forms, Algebraic topology seminar, Columbia University. Feb 2024

Dieudonné theory via prismatic F -gauges, Special year seminar, Institute for Advanced Study, Princeton. Feb 2024

Formal groups via unipotent homotopy theory, Short talks by postdoctoral members, Institute for Advanced Study, Princeton. Jan 2024

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

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

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

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

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

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

Unipotent homotopy theory of schemes, Réseau des Étudiants en Géométrie Algébrique, Institut Henri Poincaré. March 2023

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

Unipotent homotopy theory of schemes, Algebraic Geometry seminar, University of Regensburg. Dec 2022

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

On endomorphisms of de Rham cohomology, Workshop on p -adic Hodge theory, University of Michigan. May 2022

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

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

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

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

Dieudonné theory via cohomology of classifying stacks, Technische Universität München. May 2021

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

	<i>Dieudonné theory via cohomology of classifying stacks</i> , RTG number theory seminar, University of Michigan.	Dec 2020
TEACHING	<i>Math 101 (Calculus II)</i> , University of British Columbia.	Winter term 2, 2025
	<i>Math 100 (Calculus I)</i> , University of British Columbia.	Winter term 1, 2024
	<i>Math 100 (Calculus I)</i> , University of British Columbia.	Winter term 1, 2023
	<i>Math 116 (Calculus II)</i> , University of Michigan.	Winter 2022
	<i>Math 115 (Calculus I)</i> , University of Michigan.	Fall 2020
	<i>Math 116 (Calculus II)</i> , University of Michigan.	Winter 2020
	<i>Math 116 (Calculus II)</i> , University of Michigan.	Fall 2019
	<i>Math 116 (Calculus II)</i> , University of Michigan.	Winter 2019
	<i>Grader for Math 596 (Complex analysis)</i> , University of Michigan.	Fall 2018
	<i>Tutor in Math Learning Center</i> , University of Michigan.	Fall 2018
	<i>Math 115 (Calculus I)</i> , University of Michigan.	Winter 2018
	<i>Math 115 (Calculus I)</i> , University of Michigan.	Fall 2017
	<i>Probabilistic Methods</i> , Indian National Mathematical Olympiad Training Camp, Bangalore, India.	2015
SEMINARS CO-ORGANISED	<i>Algebraic geometry seminar</i> , co-organised with Kai Behrend and Jim Bryan, University of British Columbia.	2024
	<i>Reading and learning seminar on perfectoid spaces</i> , co-organised with Sujatha Ramdurai, University of British Columbia.	Fall 2023
	<i>Topological Hochschild Homology and integral p-adic Hodge theory (following Bhatt-Morrow-Scholze)</i> , co-organised with Shizhang Li, University of Michigan.	Spring 2020
	<i>Chromatic homotopy theory</i> , Student seminar, University of Michigan.	Fall 2019
	<i>Nonexistence of abelian schemes over integers</i> , Student seminar, co-organised with Peter Dillery, University of Michigan.	Spring 2019
	<i>Perfectoid spaces and p-adic Hodge theory (following Scholze)</i> , Student seminar, University of Michigan.	Fall 2018
SERVICE	<i>Co-organiser of the Algebraic geometry seminar at University of British Columbia.</i>	
	<i>Referee/quick opinion</i> for Journal of Pure and Applied Algebra, Mémoires de la Société Mathématique de France, Journal of the Institute of Mathematics of Jussieu, Selecta Mathematica, Algebra & Number Theory, Advances in Mathematics, Moduli (Foundation Compositio Mathematica).	
	<i>Reviewer for Math Reviews-AMS.</i>	
	<i>Volunteer for Michigan Math Circle.</i>	
AWARDS	<i>Highest teaching evaluation prize</i> , University of British Columbia.	Fall 2024
	<i>Funding awarded for the Algebraic Geometry seminar</i> , Pacific Institute of Mathematical Sciences (with Jim Bryan and Kai Behrend).	Fall 2024
	<i>Math Department Fellowship</i> , University of Michigan.	2022
	<i>Indu and Gopal Prasad Family Fund</i> , University of Michigan.	2021

<i>Rackham International Student Fellowship</i> , University of Michigan, awarded to assist “outstanding international students.”	2018-2019
<i>P.C. Panesar Gold Medal</i> , Indian Statistical Institute, for “outstanding performance in M. Math.”	2017
<i>Michigan Mathematics Graduate Fellowship</i> , University of Michigan.	2017-2020
<i>Inspire Scholarship</i> , Department of Science and Technology, India.	2012-2017