

Curriculum Vitae

Name : CHIRANTAN CHOWDHURY

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EDUCATION

PostDoc Mathematics Group: Timo Richarz TU Darmstadt	April 2024- Darmstadt, Germany
Visiting Position Mathematics Group: Marc Levine University of Duisburg-Essen	Nov 2021-Mar 2024 Essen, Germany
Post Doc Mathematics Group: Marc Levine University of Duisburg-Essen	Sept 2021-Sep 2023 Essen, Germany
Ph.D Mathematics Topic: Motivic Homotopy Theory of Algebraic Stacks Advisor: Jochen Heinloth University of Duisburg-Essen	Sept 2018-Sept 2021 Essen, Germany
Masters Mathematics Dissertation topic : Bridgeland stability of Curves and Surfaces, Advisor: Paolo Stellari ALGANT Program: University of Duisburg-Essen, University of Milan	Oct 2016 – July 2018 Germany, Italy
Bachelors Mathematics and Physics Chennai Mathematical Institute	Aug 2013 – July 2016 Chennai, India

RESEARCH INTERESTS

Motivic Homotopy Theory, Higher Category Theory, Algebraic Stacks, K-Theory, Condensed mathematics.

PUBLICATIONS AND PREPRINTS

1. Motivic Homotopy Theory of Algebraic Stacks (Annals of K-theory : <https://msp.org/akt/2024/9-1/akt-v9-n1-p01-s.pdf>) : <https://arxiv.org/abs/2112.15097>.
2. Six Functor Formalism I : Constructing functors using category of simplices : <https://arxiv.org/abs/2304.11742>.
3. Six Functor Formalism II : The ∞ -categorical compactification (in preparation).
4. Six Functor Formalism III : The Enhanced Operation Map and the DESCENT program (in preparation).
5. The Chow weight structure for geometric motives of quotient stacks (joint work with Dhyan Aranha) : <https://arxiv.org/abs/2306.10557>.
6. Purity and Homotopy K-theory for algebraic stacks (joint work with Alessandro D'Angelo) (in preparation).

TALKS IN CONFERENCES AND SEMINARS

" Root Datum" Mini Workshop in Algebraic Groups	Feb 2025 Darmstadt, Germany
" Abstract Six-Fun Form and Mot. Hom. Th. of Algebraic Stacks." KTH/SU Seminar	May 2025 Stockholm, Sweden
" Motivic Homotopy Theory of Algebraic Stacks." Recent Developements in Algebraic K-theory	Apr 2025 Warwick, United Kingdom
" Motivic Homotopy Theory and Six-Functor Formalisms of Algebraic Stacks." Discussion Meeting on Algebraic Geometry	Feb 2025 Mumbai, India

"Morava K-theory and E-theory" Gaus AG on Chromatic Homotopy theory	Jun 2024 Darmstadt, Germany
"Appl. of Six-Functor Formalisms in Mot. Hom. Thy of Alg. Stacks" Seminar on Arithmetic Geometry	Apr 2024 Darmstadt, Germany
"Connectivity of fibers and cofibers" Motives Seminar	Apr 2024 Essen, Germany
"Bridgeland Stability Conditions on Surfaces" "Variations of GIT quotients"	Jan 2024 Essen, Germany
"Appl. of Six Fun. Form. in Mot. Hom. Th. of Alg. Stacks" RTG Seminar	Jan 2024 Essen, Germany
"Chow Groups and Motive of Hilbert Scheme of Points over a surface" Motives Seminar on "An Arithmetic Yau-Zaslov Formula"	Nov 2023 Essen, Germany
"Adem Relations" Motives Seminar on "Motivic Steenrod Operations"	June 2023 Essen, Germany
"Symmetry theorem and Bockstein homomorphism in reduced power operations" Motives Seminar on "Motivic Steenrod Operations"	May 2023 Essen, Germany
"Chow Witt Rings of Grassmanians" Motives Seminar on "Enriched Quadratic Intersection Theory"	Nov 2022 Essen, Germany
"Algebraization" Ph.D Seminar on "Deformation Theory"	July, 2022 Essen, Germany
"Motivic Homotopy Theory of Algebraic Stacks" FGC-HRI-IPM Joint Number Theory Seminar	April, 2022 Online; Lucknow, India
"Motivic Homotopy Theory of Algebraic Stacks" Algebraic Geometry Oberseminar, UZH	March, 2022 Online; Zurich, Switzerland
"Motivic Homotopy Theory of Algebraic Stacks" Seminar on A1 topology, motives and K-theory	March, 2022 Online; St. Petersburg, Russia
"Canonical Models" Ph.D Seminar on "Shimura Varieties"	Jan, 2022 Essen, Germany
"Motivic Homotopy Theory of Algebraic Stacks" Queen's University Algebra and Geometry Seminar	Dec, 2021 Online; Ontario, Canada
"Dihedral Extensions" Research Seminar on "Irrationality proofs of Zeta Values"	Dec, 2021 Essen, Germany
"Motivic Homotopy Theory of Algebraic Stacks" RTG Seminar	Summer 2021 Essen, Germany
"Berthelot's Construction and Tate's Uniformization of Elliptic Curves" Ph.D Seminar on "Formal and Rigid Geometry"	Summer 2021 Essen, Germany
"Motivic Homotopy Theory of Algebraic Stacks" RTG Seminar	Summer 2021 Essen, Germany
"Globalization:II" and "Solid Abelian Groups" Seminar on Condensed Mathematics	Summer 2020 Online; Organizer: Simon Waldsley
"Crystalline and Semistable Representations" Ph.D seminar on "p-adic representations"	Summer 2020 Essen, Germany
"Mixed Motives" and "K-Theoretic Regulator Map" Seminar on "Beilinson's Conjecture"	Summer 2020 Essen, Germany

"Intersection theory for stacks" Seminar on Stacks	Summer 2020 Essen, Germany
"Perfectoid rings" and "Integral p-adic Hodge theory" Ph.D Seminar on "Hochschild and Cyclic Homology"	Jan, 2020 Essen, Germany
"Descent along sections" Seminar on Stacks	Jan, 2020 Essen, Germany
"Inner Fibrations" and "Presentable ∞-categories" Seminar on ∞ -categories	Nov-Dec, 2019 Essen, Germany
"Simplicial Artin Rings" Research Seminar on "Derived Galois Deformation Rings"	Nov, 2019 Essen, Germany
"Reminder of Blowups and Examples" Forschung Seminar on "Resolution of Singularities"	Oct, 2019 Essen, Germany
"Rationality of Motivic Zeta Functions over Curves and Surfaces" Motives Seminar	Summer, 2019 Essen, Germany
"Q-Construction" Ph.D Seminar on "K-Theory"	Summer, 2019 Essen, Germany
"Motive of Stack of Bundles" Seminar on Stacks	Jan, 2019 Essen, Germany
"Picard Group of $M_{1,1}$" Seminar on Stacks	Dec, 2018 Essen, Germany
"Bloch's treatment of Mumford's theorem and Bloch-Srinivas decomposition of the diagonal" Motives Seminar	Nov, 2019 Essen, Germany
"Bridgeland Stability Conditions for Curves and Surfaces" Seminar at Indian Statistical Institute, Kolkata	Aug, 2018 Kolkata, India

CONFERENCES AND WORKSHOPS ATTENDED

Geometric Aspects of the Langlands Correspondence University of Duisburg-Essen	Aug 25- Aug 29, 2025 Essen, Germany
Conference on Motives and Arithmetic Geometry TU Darmstadt	July 28- Aug 1, 2025 Darmstadt, Germany
Recent developments in Algebraic K-theory University of Warwick	Apr 7 - Apr 11, 2025 Coventry, UK
Motivic Homotopy theory University of Regensburg	Mar 17- Mar 21, 2025 Regensburg, Germany
Discussion Meeting in Algebraic Geometry TIFR	Feb 10- Feb 14, 2025 Mumbai, India
Algebraic geometry: a motivic view. Conference in honour of Marc Levine ETH	Jan 13- Jan 17, 2025 Zurich, Switzerland
Workshop on Dualizable Categories and Continuous K-theory MPIM	Sep 9- Sep 14, 2024 Bonn, Germany
Recent Advances in Algebraic K-theory IHES	July 8- July 21, 2023 Paris, France
Conference on Arithmetic Algebraic Geometry TU Darmstadt	Oct 3-Oct 7, 2022 Darmstadt, Germany

Harnessing Motivic Invariants University of Duisburg-Essen	June 27-July 1, 2022 Essen, Germany
SPP Jahrestagung University of Duisburg-Essen	Sept 30-Oct 2, 2019 Essen, Germany
School on Motives and Stacks University of Duisburg-Essen	Sept 23-Sept 27, 2019 Essen, Germany
Computations in Motivic Homotopy Theory University of Regensburg	Sept 16-20, 2019 Regensburg, Germany
SFB Conference University of Bonn	June 11-14, 2019 Bonn, Germany
Summer School in Arithmetic Geometry University of Salerno	Sept 10-14, 2018 Salerno, Italy

OTHER ACTIVITIES

Min Course on "Quasi-Categories and Barr-Beck-Lurie" University of Duisburg-Essen	Jan 2024 Essen, Germany
Organizer of Motives Seminar on "Motivic Homotopy Theory of Algebraic Stacks" University of Duisburg-Essen	Oct 2021-Jan 2022 Essen, Germany
Co-organiser of Research seminar on "Condensed Mathematics" University of Duisburg-Essen	Apr 2021-July 2021 Essen, Germany
Co-organiser of PhD Seminar on "Crystalline and Prismatic Cohomology" University of Duisburg-Essen	Oct 2020-Feb 2021 Essen, Germany
Organiser of PhD Seminar on "Hochschild and Cyclic Homology" University of Duisburg-Essen	Oct 2019-Jan 2020 Essen, Germany

SKILLS

Languages: Bengali (Native), Hindi (Fluent), English (Fluent), German (basic).

LINKS

Link to my personal website : <https://chirantanc474.wixsite.com/mathalggeo>