

Keyao PENG

Postdoc

Epiphany is not about solving a complex puzzle, but something that was too simple to see.

Paper and Thesis

Keyao Peng. Sheaves and differential equations: An introduction to algebraic analysis, bachelor dissertation, 2019.

Keyao Peng. Milnor-witt motivic cohomology and linear algebraic groups, preprint, 2306.05260, main part of phd thesis, 2023.

Keyao Peng. Milnor-witt motivic cohomology of complements of hyperplane arrangements. *Algebraic & Geometric Topology*, 23(8):3531–3552, 2023.

Work Experience

2024– **Post-doc**, *Institut de Mathématiques de Bourgogne*, Dijon, France

Education

2020–2023 **Ph.D.**, *Institut Fourier, Université Grenoble Alpes*, Grenoble, France
Algebraic geometry, with advisor *Jean Fasel*

2019–2020 **Master**, *Institut Fourier, Université Grenoble Alpes*, Grenoble, France
Mathématiques fondamentales

2015–2019 **Bachelor**, *Taishan College, Shandong University*, Jinan, China
Majored in mathematics

Academic Activities

Speaker

Aug 2023 Chow-Witt Rings: Computations and Applications *BIMSA*

My talk: *MW-motivic cohomology of linear algebraic groups and Stiefel varieties*

2022 Géométrie réelle, motifs et A1-homotopie *ENS de Lyon*

My talk: *Théorie des 6 foncteurs (Theory of six functors)*

2020–2021 Working group on stratified homotopy theory *IAS*

My talk: *Oriented pushouts and oriented fibre products*

2021-2023 Séminaire Compréhensible *Institut Fourier*

My talks:

May 2023 *How to explain (higher) categories to a geometric topologist? (An introduction to Cobordism Hypothesis)*

Feb 2021 *Homotopy type theory for mathematicians*

Participation

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Mar 2024	Unstable Motivic Homotopy Theory/Motives in Mainz	Mainz
Sep 2023	Categorical Symmetries in Quantum Field Theory	SRS
Jul 2023	Recent Advances in Algebraic K-theory	IHES
Apr 2023	Higher Structures in Geometry and Mathematical Physics	CIRM
Aug 2022	Motivic Geometry Conference	Oslo
Jul 2022	Summer School on the Langlands program	IHES
Jun 2022	Harnessing motivic invariants	Essen
Jun 2022	Conférence A Toulouse pour Simpson	Toulouse
Feb 2022	Logic and higher structures	CIRM
Jan 2022	Linear Logic Winter School	CIRM
Sep 2021	Unifying Themes in Geometry	Lake Como
Sep 2021	The Six-Functor Formalism and Motivic Homotopy Theory	Milano
Sep 2021	Summer School on Derived and Triangulated Categories	Wuppertal
July 2021	Summer School "Illustrating Mathematics"	PCMI
July 2021	Summer School "Motivic Homotopy"	PCMI
Sep 2021	Series Workshops "Expanding Horizons of Inter-universal Teichmüller Theory"	RIMS
June 2021	Topos online	IHES
June 2021	Tangent Categories and their Applications	BIRS
July 2020	Summer School "Motivic, Equivariant and Non-commutative Homotopy Theory"	IHES

Teaching

Autumn 2022 **TA**, *Université Grenoble Alpes*, An introduction to algebraic geometry

Skill

Language

Chinese	Mother tongue	English	C1
French	B2	German	A1
Japanese	A2		

Computer

Language	Typescript, C#, Haskell, Purescript, Lean
Animation	Blender, Unity

Interest

Synthetic Geometry	Study geometry without using analysis, including algebraic geometry, arithmetic geometry, algebraic analysis and more
Homotopy	The geometry of "path", like A1 homotopy theory, homotopy type theory
Higher Structures	Higher means add homotopy to everything, like set, algebra, category, topos, TQFT, etc.