LEI ZHANG

Chinese University of Hong Kong, Department of Mathematics

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PERSONAL INFORMATION

DATE OF BIRTH	July 16, 1983
GENDER	Male
CITIZENSHIP	German

MATHEMATICAL INTERESTS

My area of research is algebraic arithmetic geometry, using techniques from Tannakian categories and affine gerbes.

More specifically, I am interested in non-neutral Tannakian categories, Nori fundamental gerbes, the homotopy sequence of various fundamental groups.

EMPLOYMENT

THE CHINESE UNIVERSITY OF HONG KONG   *Oct. 23. 2018 - Present*
Research Assistant Professor

FREIE UNIVERSITÄT BERLIN   *Nov. 01. 2012 - Oct. 22, 2018*
Post-doc

UNIVERSITÄT DUISBURG-ESSEN   *Jul. 17. 2012 - Sep. 30. 2012*
Post-doc

EDUCATION

UNIVERSITÄT DUISBURG-ESSEN   *Oct. 01. 2009 - Jul. 16. 2012*
Ph.D student under the supervision of Professor Hélène Esnault
THESIS TITLE: *The homotopy sequence for fundamental groups*
AWARDED: July 16, 2012

CAPITAL NORMAL UNIVERSITY   *Sep. 2006 - Jun. 2009*
Master Student under the supervision of Professor Kezheng Li
THESIS TITLE: *Left Invariant Differential Operators*
Degree awarded by College of Mathematical Science in June 2009.

CHINA UNIVERSITY OF MINING AND TECHNOLOGY   *Sep. 2002 - Jun. 2006*
Bachelor student in Financial Mathematics
Degree awarded by College of Science in June 2006.

PREPRINTS AND PUBLICATIONS

(1) *The Homotopy Sequence for Nori's Fundamental Group.*
Journal of Algebra, Vol. 393, pp. 79 - 91, 2013.
doi: https://doi.org/10.1016/j.jalgebra.2013.07.010

(2) *The Homotopy Sequence for the Algebraic Fundamental Group.*
International Mathematics Research Notices, no. 22, 6155-6174, 2013.
doi: 10.1093/imrn/rnt163

(3) *Nori's Fundamental Group over a non-algebraically Closed Field.*
Annali della Scuola Normale Superiore di Pisa - Classe di Scienze (5), 18 , no. 4, 1349–1394, 2018.
doi: 10.2422/2036-2145.201604_007

(4) *Algebraic and Nori Fundamental Gerbes* (with Fabio Tonini).
Journal of the Institute of Mathematics of Jussieu, 1-43, 2017
doi:10.1017/S147474801700024X

(5) *F-divided sheaves trivialized by dominant maps are essentially finite* (with Fabio Tonini).
Transactions of the American Mathematical Society, 371, 1-22, 2019.
doi: https://doi.org/10.1090/tran/7444

(6) *Essentially Finite Vector Bundles on Normal Pseudo-proper Algebraic Stacks* (with Fabio Tonini).
`https://arxiv.org/abs/1702.03751`.

(7) *Nori fundamental gerbe of essentially finite covers and Galois closure of towers of torsors* (with M. Antei, I. Biswas, M. Emsalem, F. Tonini).
To appear in *Selecta Mathematica*,
`https://arxiv.org/abs/1706.00739`.

(8) *Neukirch-Uchida Theorem for Purely Inseparable Field Extensions* (with M. Romagny, F. Tonini).
`https://arxiv.org/pdf/1711.06898.pdf`.

(9) *A crystalline version of Berthelot's conjecture* (with V. Di Proietto, F. Tonini).
In preparation.

PROFESSIONAL SERVICES

(1) Referee of *Mathematical Research Letters*

(2) Referee of *Journal of Topology*

(3) Referee of *American Journal of Mathematics*

(4) Referee of *Compositio Mathematica.*

(5) Reviewer of zbMATH.

INVITED SEMINAR TALKS

(1) Number Theory Seminar at Capital Normal University, 08/2011.
Invited by Prof. Dr. Kezheng Li and Dr. Zifeng Yang.

(2) Number Theory Seminar at Capital Normal University, 03/2012.
Invited by Prof. Dr. Kezheng Li and Dr. Zifeng Yang.

(3) Arithmetic Geometry Seminar at Universität Regensburg, 30/11/2012.
Invited by Prof. Dr. Uwe Jannsen.

(4) Séminaire de géométrie algébrique at IRMAR Université de Rennes 1, 03/10/2013.
Invited by Prof. Dr. Matthieu Romagny.

(5) Scuola Normale Superiore di Pisa, 20/11/2013.
Invited by Prof. Dr. Angelo Vistoli.

(6) Séminaire de Théorie des Nombres at Institut de Mathématiques de Bordeaux, 11/04/2014.
Invited by Dr. Jilong Tong.

(7) Number Theory Seminar at Capital Normal University, 08/10/2014.

(8) Séminaire d'algèbre, topologie et géométrie at Laboratoire J. A. Dieudonné, Université de Nice, 18/12/2014.
Invited by Dr. Macro Antei.

(9) Number Theory Seminar at Capital Normal University, 30/03/2017.

(10) Colloquium talk at SUSTech, 07/01/2018.

(11) Geometry Seminar at SUN YAT-SEN UNIVERSITY, 08/01/2018.

(12) Colloquium talk at National Tsing Hua University (Hsinchu), 12/03/2018.

(13) Seminar talk at National Center for Theoretical Science (Hsinchu), 14/03/2018.
Invited by Prof. Dr. Chieh-Yu Chang.

(14) Colloquium talk at the Department of Mathematics of Hong Kong University, 07.03.2018.

(15) Colloquium talk at the Department of Mathematics of the Chinese University of Hong Kong, 16.04.2018.

CONFERENCE TALKS

DEUTSCHEN MATHEMATIKER-VEREINIGUNG   *Sep.17, 2012 - Sep. 20, 2012*
at Universität des Saarlandes, Saarbrücken.

On the Homotopy Sequence of Nori's Fundamental Group.
(Minisymposia and Sections Sep.17, 2012)

NORTH GERMAN ALGEBRAIC GEOMETRY SEMINAR   *May 15, 2014 - May 16, 2014*
at Universität Hamburg, Hamburg.

Galois Theory for Schemes.
(May 16, 2014)

ARITHMÉTIQUE DES VARIÉTÉS EN FAMILLES   *Nov. 4, 2014 - Nov. 7, 2014*
at Institut de Mathématiques de Bordeaux.

Nori's Fundamental Group with a Geometric Point.
(Nov. 5, 2014)

CURVES AND GROUPS IN FAMILIES   *May 13, 2019 - Nov. 17, 2019*
at Henri Lebesgue Center, Rennes.

Fundamental group schemes en caracteristic p.
(May, 2019)

TEACHING EXPERIENCE

(1) Exercise session for the course *Algebraic Number Theory II*, Freie Universität Berlin, summer semester 2018.

(2) Seminar: *Quadratische Formen* (in English *Quadratic Forms*), Freie Universität Berlin, summer semester 2018. This seminar was in German.

(3) Course: *Crystals and Crystalline Cohomology*, Freie Universität Berlin, winter semester 2017.

(4) Seminar: *p-adische Zahlen* (in English *p-adic Numbers*), Freie Universität Berlin, summer semester 2017. This seminar was in German.

(5) Exercise session for the course *Algebraic Number Theory II*, Freie Universität Berlin, summer semester 2017.

(6) Course: *Étale Cohomology*, Freie Universität Berlin, winter semester 2016-2017.

(7) Course: *Algebraic Groups*, Freie Universität Berlin, summer semester 2016.

(8) Seminar: *Analytic Methods in Number Theory*, Freie Universität Berlin, winter semester 2015-2016.

(9) Exercise session for the course *Elliptic Curves*, Freie Universität Berlin, winter semester 2015-2016.

(10) Seminar: *Quadratic Forms*, Freie Universität Berlin, summer semester 2015.

(11) Exercise session for the course *Algebraic Number Theory II*, Freie Universität Berlin, summer semester 2015.

(12) Exercise session for the course *Algebraic Number Theory II*, Freie Universität Berlin, winter semester 2014-2015.

(13) Student seminar *p-adic Numbers*, Freie Universität Berlin, winter semester 2014-2015.

(14) Teaching assistant of Prof. Dr. Hélène Esnault for the master course *Algebraic Number Theory*, Freie Universität Berlin, summer semester 2014.

(15) Teaching assistant of Prof. Dr. Hélène Esnault for the master course *Commutative Algebra I*, Freie Universität Berlin, winter semester 2013-2014.

(16) Teaching assistant of Prof. Dr. Hélène Esnault for the master course *Algebraic Number Theory II*, Freie Universität Berlin, summer semester 2013.

(17) *Lern- und Diskussionszentren* (LuDi), Universität Duisburg-Essen, summer semester 2012.

(18) Teaching assistant of Prof. Dr. Hélène Esnault and Prof. Dr. Moritz Kerz for the master course *Algebraic Geometry III*, Universität Duisburg-Essen, summer semester 2011.

STUDENTS

(1) 2018, Ragnarsson Amazeen, master thesis: *Étale and Proétale Fundamental Groups*, Freie Universität Berlin.

(2) 2018, Janine Schuhmann, bachelor thesis: *Klassifikation von quadratischen Form über $\mathbb{Q}_p$, $\mathbb{Q}$ und $\mathbb{R}$*

LANGUAGE SKILLS

(1) Chinese (native)

(2) English (fluent)

(3) German (fluent)

(4) French (basic)