

Ma Luo , 05/2024

CONTACT INFORMATION	School of Mathematical Sciences East China Normal University 500 Dongchuan Road 200241 Shanghai China	Phone: +86 21 54342646-326 Email: mluo@math.ecnu.edu.cn
AREAS OF INTEREST	Number Theory, Algebraic Geometry	
RESEARCH INTERESTS	De Rham theory, Hodge theory, periods and fundamental groups of algebraic varieties, especially those of curves and their moduli spaces.	
EMPLOYMENT	Assistant Professor, East China Normal University	2021–present
	Postdoctoral Research Associate, University of Oxford	2018–2021
VISITING	Isaac Newton Institute for Mathematical Sciences, Cambridge	Jan. 2020
	Institute for Theoretical Studies, ETH Zürich	Apr. 2019
	Hausdorff Research Institute for Mathematics, Bonn	Jan.–Feb. 2018
EDUCATION	Ph.D., Mathematics, Duke University Advisor: Richard Hain Thesis: <i>Algebraic de Rham theory for completions of fundamental groups of moduli spaces of elliptic curves</i>	2012–2018
	B.S., Mathematics, Peking University	2008–2012
GRANTS	Fundamental Research Funds for the Central Universities	2023–2024
	National Natural Science Foundation of China, Grant No. 12201217	2023–2025
HONORS AND AWARDS	Chebyshev Grant, International Congress of Mathematicians – fully covers the costs of participation, cancelled as the format changes to online	2022
	New World Mathematics Award, Silver Medal for Ph.D. thesis – awarded for outstanding Chinese mathematics students worldwide	2019
	Graduate Fellowship, Duke University	2012–2017
	Summer Research Fellowship, Duke University	2014, 2015
	National Everest Plan, Ministry of Education of P. R. China	2011

Youth Festival Scholarship, Peking University	2011
Innovation Award, Peking University	2011

RESEARCH ARTICLES

Iterated integrals of modular forms, in preparation.

(with T. Watanabe) u_2 is not free, preprint.

(with T. Watanabe) *Remarks on Collino cycles and hyperelliptic Johnson homomorphisms*, Journal of Algebra 649 (2024) 96–132.

Algebraic de Rham theory for the relative completion of $SL_2(\mathbb{Z})$, Transactions of the American Mathematical Society 376 (2023), no. 11, 7743–7782.

The elliptic KZB connection and algebraic de Rham theory for unipotent fundamental groups of elliptic curves, Algebra & Number Theory 13 (2019), no. 10, 2243–2275.

INVITED TALKS IN SEMINARS AND CONFERENCES

Iterated Integrals and Relative Unipotent Completions, AGNT Seminar, Institute for Theoretical Sciences, Westlake University, Hangzhou, Apr. 2024.

Iterated integrals of modular forms, I & II, Multi-Zeta Values and Iterated Integrals Workshop, Yau Mathematical Sciences Center, Tsinghua University, Beijing, Nov. 2023.

Multiple zeta values as iterated integrals, Algebra and Geometry Series, Anhui Normal University, Mar. 2023. **online**

Iterated integrals of modular forms, 2022 Jinling Number Theory and Algebraic Geometry Conference, Sep. 2022. **online**

Motivic relations between double zeta values, The First Conference on Multiple Zeta Values and Related Areas, Aug. 2022. **online**

Periods and completions of fundamental groups, Workshop on algebraic geometry, Tongji University, Shanghai, Nov. 2021.

Relative completions of mapping class groups, Yau Mathematical Sciences Center, Tsinghua University, Nov. 2021. **online**

Periods and completions of fundamental groups, Geometry, Arithmetic and Differential Equations of Periods, IMPA - Instituto de Matematica Pura e Aplicada, Mar. 2021. **online**

Iterated integrals and their applications, Embry-Riddle Aeronautical University, Prescott, Mar. 2020.

u_2 is not free, Tsinghua Sanya International Mathematics Forum, Sanya, Feb. 2020. **cancelled**

Quasi-periods of modular forms, Young Researchers in Algebraic Number Theory, University of Warwick, Coventry, Nov. 2019.

Galois theory for multiple modular values, Contributed lecture, The 8th International Congress of Chinese Mathematicians, Tsinghua University, Beijing, Jun. 2019.

Extensions of motives from fundamental groups, Contributed talk, Stockholms Matematikcentrum, Stockholm, May. 2019.

Lawrence–Venkatesh 1, Arithmetic Geometry Seminar, University of Oxford, Oxford, Oct. 2018.

Periods of Hodge structures, Junior Number Theory Seminar, University of Oxford, Oxford, Oct. 2018.

Algebraic Iterated Integrals on the modular curve, Number Theory Seminar, Duke University, Durham, Apr. 2018.

Algebraic Iterated Integrals on elliptic curves, Number Theory Seminar, Duke University, Durham, Mar. 2018.

Algebraic de Rham theory for relative completion of $\mathrm{SL}_2(\mathbb{Z})$, Number Theory Seminar, Duke University, Durham, Dec. 2017.

Algebraic de Rham theory for unipotent fundamental groups of elliptic curves, Triangle Area Graduate Mathematics Conference, North Carolina State University, Raleigh, Nov. 2017.

Galois theory for multiple zeta values and multiple modular values, Graduate-Faculty Seminar, Duke University, Durham, Oct. 2017.

Periods and Galois theory, Triangle Area Graduate Mathematics Conference, Duke University, Durham, Apr. 2017.

Algebraic de Rham theory for relative completions of modular groups, Algebraic Geometry Seminar, Purdue University, West Lafayette, Feb. 2017.

Periods and iterated integrals, Triangle Area Graduate Mathematics Conference, University of North Carolina at Chapel Hill, Chapel Hill, Dec. 2016.

Periods, Galois theory and Hodge theory, Geometry & Topology Graduate Seminar, Duke University, Durham, Nov. 2016.

Iterated Integrals, Moduli Crossroads Retreat, I, University of Wisconsin-Madison, Madison, Jun. 2015.

SELECTED
WORKSHOPS AND
CONFERENCES

Conference on Arithmetic and Algebraic Geometry, Tongji University, Shanghai, Dec. 9–11, 2023.

The 3rd Cross Strait Workshop on Arithmetic Geometry, University of Science and Technology of China, Hefei, Aug. 19–22, 2023.

The 2nd International Workshop on Multiple Zeta Values and Related Fields, Zhejiang Sci-Tech University, Hangzhou, Aug. 5–6, 2023.

Pujiang Innovation Forum of Advances of Basic Science, International Hall, Science Hall, Shanghai, Jul. 24–26, 2023.

Conference on Algebraic Geometry, Tongji University, Shanghai, May 26–29, 2023.

Workshop: Arithmetic geometry, cycles, Hodge theory, regulators, periods and heights, Isaac Newton Institute for Mathematical Sciences, Cambridge, Jun. 20–24, 2022. **online**

Workshop: Algebraic K-theory, motivic cohomology and motivic homotopy theory, Isaac Newton Institute for Mathematical Sciences, Cambridge, Jun. 13–17, 2022. **online**

Heilbronn Annual Conference 2021, Heilbronn Institute for Mathematical Research, Sep. 9–10, 2021. **online**

Amplitudes 2021, Niel Bohr Institute, Copenhagen, Aug. 16–20, 2021. **online**

RSVP: Rendez-vous on special values and periods, École Normale Supérieure de Lyon, May 19–21, 2021. **online**

Rational Points and Galois Representations, An online workshop hosted by the University of Pittsburgh, May 10–12, 2021. **online**

Unlikely intersections, Diophantine geometry, and related fields, Apr. 12–16, 2021. **online**

Algebraic Structures in Perturbative Quantum Field Theory, A conference in honour of Dirk Kreimer's 60th birthday, IHES, Nov. 16–20, 2020. **online**

MITP Virtual Workshop: Elliptics and Beyond, Mainz Institute for Theoretical Physics, Sep. 7–11, 2020. **online**

Number Theory Informed by Computation, PCMI 2020 Research Program, Park City, Jul. 12–25, 2020. **rescheduled** Jul. 17–Aug. 6, 2022.

Périodes, motifs et équations différentielles : entre arithmétique et géométrie, Institut Henri Poincaré, Paris, Apr. 6–10, 2020. **rescheduled** Apr. 11–15, 2022.

Workshop: Arithmetic geometry, cycles, Hodge theory, regulators, periods and heights, Isaac Newton Institute for Mathematical Sciences, Cambridge, Mar. 30–Apr. 3, 2020. **rescheduled** Jun. 20–24, 2022.

Conference on Arithmetic Algebraic Geometry, Technischen Universität Darmstadt, Darmstadt, Mar. 16–20, 2020. **cancelled**

Nonabelian Chabauty, Arizona Winter School, Tucson, Mar. 7–11, 2020.

Abelian varieties, Siegel modular forms and related topics, Tsinghua Sanya International Mathematics Forum, Sanya, Feb. 10–14, 2020. **cancelled**

Programme: K-theory, algebraic cycles and motivic homotopy theory, Isaac Newton Institute for Mathematical Sciences, Cambridge, Jan. 6–17 **attended**, Jun. 20–30 **cancelled**, 2020.

Young Researchers in Algebraic Number Theory, University of Warwick, Coventry, Nov. 7–8, 2019.

2019 Clay Research Conference and Workshops, Mathematical Institute, Oxford, Sep. 29–Oct. 4, 2019.

Workshop: Arithmetic and Geometric Aspects of Modular Forms, All Souls College, Oxford, Jul. 22–23, 2019.

The 8th International Congress of Chinese Mathematicians, Tsinghua University, Beijing, Jun. 9–15, 2019.

Masterclass: Elliptic Motives, Stockholms Matematikcentrum, Stockholm, May. 20–24, 2019.

Modular forms, periods and scattering amplitudes, Institute for Theoretical Studies, ETH Zürich, Apr. 8–12, 2019.

Workshop on Moduli Spaces and Related Problems, Shanghai Center for Mathematical Sciences, Shanghai, Sep. 17–21, 2018.

The Fourth Duke Mathematical Journal Conference, Duke University, Durham, Apr. 26–29, 2018.

Periods in Number Theory, Algebraic Geometry and Physics, Hausdorff Research Institute for Mathematics, Bonn, Jan. 3–Feb. 4, 2018.

Motives for Periods, Freie Universität, Berlin, Aug. 28–Sep. 1, 2017.

Hot Topics: Galois Theory of Periods and Applications, Mathematical Sciences Research Institute, Berkeley, Mar. 27–31, 2017.

Connecticut Conference on Elliptic Curves, Modular Forms, and Related Topics, University of Connecticut, Storrs, Aug. 12–14, 2016.

Periods, Galois theory and particle physics, I – IV, Gergen Lectures by Francis Brown, Duke University, Durham, Mar. 21–24, 2016.

AMS Summer Institute in Algebraic Geometry, Bootcamp & Main Conference, University of Utah, Salt Lake City, Jul. 6–10 & 27–31, 2015.

Moduli Crossroads Retreat, I, University of Wisconsin-Madison, Madison, Jun. 8–12, 2015.

Workshop on Fundamental Groups and Periods, Institute for Advanced Study, Princeton, Oct. 13–17, 2014.

SEMINARS AND
CONFERENCES
ORGANIZED

Coorganizer (with Jin Cao), Online Seminar on periods and motives, Nov. 2023

Coorganizer (with Xin Lv et al), Conference on Algebraic Geometry and Number Theory in East China Normal University, Sep. 21–24, 2023

REVIEW AND
REFEREE

Zentralblatt MATH
Algebra & Number Theory
Tunisian Journal of Mathematics

TEACHING
EXPERIENCE

East China Normal University

– Instructor

Linear Algebra A

Spring 2024

Linear Algebra A

Fall 2023

Advanced Algebra II

Spring 2023

Linear Algebra A

Fall 2022

– Teaching Assistant

Advanced Algebra II

Spring 2022

Advanced Algebra I

Fall 2021

University of Oxford

– Class Tutor

Algebraic Number Theory

Hilary Term 2020

– Instructor

Graduate Course: Mixed Hodge Structures on Fundamental Groups

Michaelmas Term 2019

Duke University

Certificate in College Teaching awarded

May 2018

– Instructor

Math 216 Discussion Sections 1,5,7, Linear Algebra and ODE

Fall 2017

Math 112L Section 02, Calculus II

Spring 2017

Math 111L Section 04, Calculus I

Fall 2016

Math 112L Section 07, Calculus II

Spring 2016

Math 111L Section 10, Calculus I

Fall 2015

– Teaching Assistant

Math 216, Linear Algebra and ODE

Summer 2017, Summer 2018

Math 112L, Calculus II

Spring 2015

Math 111L, Calculus I

Summer & Fall 2013, Spring 2015

Math 353, Ordinary & Partial Differential Equations

Summer 2013

Math 122L, Multivariable Calculus

Fall 2012