

Martin T. Luu

University of California, Davis

One Shields Avenue

Davis, C.A. 95616 USA

Phone: (530) 754 - 0505

Email: mluu@math.ucdavis.edu

URL: <https://www.math.ucdavis.edu/~mluu/>

Research interests

Langlands dualities, dualities of quantum field theories, and their interrelation.

Employment

2016–present	Tenure-Track Assistant Professor, University of California, Davis
2014–2016	Tenure-Track Assistant Professor, University of Illinois at Urbana-Champaign
2011–2014	Szegő Assistant Professor, Stanford University

Education

2011	Ph.D. Princeton University
2006	M.Sc. in Mathematics, University College London (Faculty Medal winner)

Publications

Books

1. [Deformation Theory and Local-Global Compatibility of Langlands Correspondences](#)
Memoirs of the AMS, Volume 238 (2015), No. 1123, 101 pp
[Link](#).

JOURNAL ARTICLES

1. [Rigidity of Kac-Schwarz operators](#)
Letters in Mathematical Physics, 110 (2020), 911–924
[Link](#).

2. [Spectral Curve Duality beyond the Two-Matrix Model](#)
Journal of Mathematical Physics, 60 (2019), 8 pp.
[Link](#).
3. [Feigin-Frenkel Image of Witten-Kontsevich Points](#)
International Mathematics Research Notices, doi.org/10.1093/imrn/rnz390
[Link](#).
4. [Langlands Parameters of Quivers in the Sato Grassmannian](#) (with Matej Penciak)
Communications in Mathematical Physics, 357 (2018), 775 - 789
[Link](#).
5. [KP Flows and Quantization](#)
Journal of Mathematical Physics, 57 (2016)
[Link](#).
6. [Local Langlands Duality and a Duality of Conformal Field Theories](#)
Communications in Number Theory and Physics, 10 (2016), 1-22
[Link](#).
7. [Fourier Duality of Quantum Curves](#) (with Albert Schwarz)
Mathematical Research Letters, 23 (2016), 1109-1135
[Link](#).
8. [Duality of 2D Gravity as a Local Fourier Duality](#)
Communications in Mathematical Physics, 338 (2015), 251-265
[Link](#).
9. [Crystalline Cohomology of Superschemes](#)
Journal of Geometry and Physics, 121 (2017), 83 - 92
[Link](#).

PREPRINTS

1. Normal forms of Heisenberg connections
[Link](#).
2. Iterated integrals on affine curves (with Albert Schwarz)
[Link](#).
3. Drinfeld-Sokolov Flows and the Local Geometric Langlands Correspondence
[Link](#).

Talks

CONFERENCE TALKS

Lisbon University – July 2019:
 “Irregular Singularities and Quantum Field Theory”

Université Paris VII – March 2017 :
 “Irregular Connections, Character Varieties and Physics”

AMS Fall Central Sectional Meeting, Minneapolis – October 2016:
Special Session “Representation Theory, Automorphic Forms and Related Topics”

University of Illinois at Urbana Champaign – November 2014:
“University of Illinois Langlands Day”

AMS Fall Central Sectional Meeting, Eau-Claire – September 2014 :
Special Session “Number Theory”

UC Santa Cruz – November 2012:
“Bay Area Algebraic Geometry and Number Theory Day”

SEMINAR TALKS

University of California, Davis – December 2018 :
QMAP Seminar

University of California, Davis – February 2017 :
Algebra and Discrete Math Seminar

Duke University – November 2015:
Number Theory Seminar

University of Chicago – April 2015
Number Theory Seminar

Northwestern University – April 2015:
Number Theory Seminar

Purdue University – April 2015:
Number Theory Seminar

University of Illinois at Urbana-Champaign – November 2014:
Math-Physics Seminar

University of Illinois at Urbana-Champaign – November 2013:
Number Theory Seminar

UC Santa Cruz – November 2013:
Algebra and Number Theory Seminar

MIT – December 2011
Number Theory Seminar

UC Santa Cruz – November 2011
Algebra and Number Theory Seminar

UC Berkeley – October 2011
Number Theory Seminar

Stanford University – October 2011
Number Theory Seminar

Service

UC DAVIS MATHEMATICS DEPARTMENT

2019 - 2020 Undergraduate Program Committee (UPC)

2019 - 2020 Lecturer Search/Evaluation Committee

2019 - 2020 Ad hoc committee member for MAT 16ABC course re-design (mathematics for data science)

2018 - 2019 Postdoc (KAP) Search Committee

2018 - 2019 AI Mentoring Committee

2018 Qualifying exam committee member for Robert Scherer

2017 Organizer of the Algebra and Discrete Math Seminar (spring quarter)

2017 - 2018 Colloquium and Distinguished Lecture Series co-organizer

2017 - 2018 Events and Display Committee

UNIVERSITY SERVICE AT UC DAVIS

2020 Moderator at “31st Undergraduate Research, Scholarship & Creative Activities Conference” at UC Davis

2020 Judge at “UC Davis Grad Slam” competition

2019 Moderator at “30th Undergraduate Research, Scholarship & Creative Activities Conference” at UC Davis

2018-2019 UC Davis Graduate Studies Internal Fellowship Reviewer:

1. Achievement Rewards for College Scientists Awards
2. Outstanding Graduate Student Teaching Assistant Award

2017-2018 UC Davis Graduate Studies Internal Fellowship Reviewer

CONFERENCE ORGANIZATION:

2021 (expected) Co-organizer of conference “The Mathematics of Quantum Field Theory” at UC Davis

2015 Co-organizer of special session “The Langlands Program and related Topics” at AMS Fall Central Sectional Meeting

2014 Organizer of 1-day conference on the Langlands Program at the University of Illinois at Urbana-Champaign

REFEREEING:

Algebra & Number Theory

Communications in Mathematical Physics

International Journal of Modern Physics B

SERVICE AT THE UNIVERSITY OF ILLINOIS

2014-2016 Co-organizer Number Theory Seminar, Election Committee, Algebraic Number Theory Comprehensive Exam Committee

Teaching

TEACHING AWARDS AND ACTIVITIES

2015 Included in the University of Illinois at Urbana-Champaign List of Teachers ranked as excellent
2012 Curriculum Development at Stanford: Participant in week long “Course Design and Effective Teaching Program” by Stanford University’s Center for Teaching and Learning

AT UC DAVIS

Math 298 (Reading course): Modular Curves

Math 250C: Algebra (covers Representation theory and homological algebra)

Math 125A: Real Analysis

Math 115A: Number Theory

Math 22A: Linear Algebra

Math 16B: Calculus

Math 16A: Calculus

SUPERVISED UNDERGRADUATE RESEARCH

Supervised numerous undergraduate student research projects at UC Davis, including the following:

- Supervised Jake Parkhurst (UC Davis undergrad) for his senior thesis “On the existence of a Euclidean algorithm in number rings with infinitely many units” (summer and fall 2018)
- Supervised Wei Luo (UC Davis undergrad) for his research project “Tau functions of Drinfeld-Sokolov hierarchies” (2018 - 2019)
- Supervised Jiangcheng Yu (UC Davis undergrad) for his research project “The Levelt-Turrittin algorithm for meromorphic systems of differential equations” (summer and fall 2018)

TEACHING AT THE UNIVERSITY OF ILLINOIS

Math 595: Elliptic Curves and Modular Forms (Graduate topics course)

Math 530: Algebraic Number Theory (Graduate course)

Math 453: Elementary Number Theory

TEACHING AT STANFORD UNIVERSITY

Math 196: Undergraduate Colloquium

Math 121: Modern Algebra II (Galois Theory)

Math 120: Modern Algebra I (Groups and Rings)

Math 109: Applied Group Theory

Math 106: Functions of a Complex Variable

Math 51: Linear Algebra and Differentiable Calculus of Several Variables

Math 20: Calculus

Math 19: Calculus

TEACHING AT PRINCETON UNIVERSITY

Math 201: Multivariable Calculus