Chen-Wei (Milton) Lin

email: clin130@jhu.edu

Research Interests

Mathematics: Relative Geometric Langlands, Representation Theory of Metaplectic Groups, p-Adic Geometry, Higher Category Theory, K-theory.
Machine learning: Interpretability, Memory Networks, Foundations of Deep Learning

Education

Ph.D. of Mathematics, Johns Hopkins University, 2019-2025 (Expected)
Supervisor: David Gepner
Thesis title: Geometric and Categorical Aspects of the Langlands Program.

Masters of Mathematics, University of Oxford, 2018-2019
Dissertation Topic: Index of Operators and KK-theory. Supervisor: Dr. Andre Henriques.
Fourth year examinations, ranked 4th in cohort
Best dissertation award in Mathematics Department

BA Mathematics, University of Oxford, 2015-2018
Supervisors: Prof. Glenys Luke, Prof. Tom Sanders.
Preliminary Examinations, ranked Top 10 of approx. 200 students.
Third Year Examinations, ranked Top 10 of approx. 150 students.

Preprints [1]

Mixed characteristic Geometric Casselman Shalika Formula, arXiv:2408.07953, **submitted**. In this joint work with Ashwin Iyengar (American Mathematical Society) and Konrad Zou (Bonn University), we prove the geometric Casselma–Shalika formula in the setting of Witt vector Grassmanian.

Integral aspects of Fourier Duality, arXiv:2407.06184, **submitted**. In this joint work, we prove several results regarding integral versions of Fourier duality for abelian schemes, using Pappas' work on integral Grothendieck–Riemann–Roch.

Awards and honors

Dissertation Prize Fellowship
Johns Hopkins University

Gibbs Dissertation Prize for Mathematics
Awarded by the Oxford Mathematical Institute.
Best Masters of Mathematics dissertation.

Alison Sheppard Prize for Mathematics
Awarded by St Hugh's College, Oxford.
Third year mathematician with highest first class in College.

St Hugh's College Scholarship Award

[1] In progress projects at the end of C.V.

Awarded by St Hugh's College, Oxford, annually.
First Class Honors in each year.

Invited Talks

Arbeitsgemeinschaft at Oberwolfach: Relative Langlands Duality, March 30th 2025.
Technical University of Darmstadt, Feburary 7th, 2025.
University of Minnesota Student Number Theory Seminar, November 19th, 2024.
Johns Hopkins University, Topology seminar, September 12th, 2024.

Seminar Talks

2024
Efmov K-theory learning seminar, JHU, on *the AB6 axiom.*
Topology E-theory seminar, JHU, on *Gross-Hopkins Period Map.*
Number theory learning seminar, JHU, motivic periods, two talks on *Chen's Theorem.*

2023
Topology Seminar, JHU, on *Dieudonné modules, following Lurie and Hopkins.*
Topics in representation theory seminar, JHU, on *Uniformization of G-bundles.*
Topological Quantum Field Theory learning seminar, JHU, on *Classical Field Theory and σ-models.*
Topics in representation theory seminar, JHU, on *Affine Grassmanian.*
Prismatic cohomology Seminar organizer, with Naruki Masuda and David Gepner.

2022
Heegner points study group, JHU, on *Selmer structures and duality.*
Derived deformation theory seminar, JHU, three talks on *Calegari-Geraghty Method in Modularity Lifting.*
Jacquet Langlands Correspondence student seminar, JHU, four talks.

2021
eCHT Hermitian K-theory, on *Poincaré Categories.*
Category theory seminar, on *Differential Cohomology and Cohesive Topoi.*
Derived deformation theory seminar, JHU, on formal moduli problems.
Seminar on Stack of Langlands Parameter, joint with U Chicago, on *Representation Stacks.*
Non-archimedean study group, on *Formal schemes and Rigid Generic Fiber.*

2020
DaFra Seminar on Condensed mathematics, a talk on *Solid Abelian Groups.*
Étale homotopy study group, Kings College London, a talk on *Étale Homotopy Obstruction.*
Topological Hochschild Homology Seminar, UIC, two talks on *Construction of THH.*
Spectral Algebraic Geometry Seminar, UIC, two talks on *Spectrally Ringed ∞-Topoi.*
eCHT Kan Fall Seminar, two talks on chapter 1 of *A Survey of Elliptic Cohomology, J. Lurie.*
Number Theory Seminar, Uni. of Melbourne, two talks on *Contragredient representations.*
Oberseminar, Uni. of Regensburg, a talk on *The p-complete Frobenius.*

2019
Masters presentation, University of Oxford. On *The Atiyah Singer-Index Theorem.*
Reading Group, University of Oxford. On *Model Categories, Dwyer and Saplinski.*