Chen-Wei (Milton) Lin

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Education

Ph.D. of Mathematics, Johns Hopkins University, 2019-Present
Expected Graduation, July 2025.
Supervisor: David Gepner.

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.

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.

Awards and honors

Gibbs Dissertation Prize for Mathematics
Awarded by the Oxford Mathematical Institute.
One or two prizes each year for 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
Awarded by St Hugh's College, Oxford, annually.
First Class Honors in each year.

Publications and preprints in mathematics

Mixed characteristic Geometric Casselman Shalika Formula, **arXiv:2408.07953**. Joint with Ashwin Iyengar (Johns Hopkins University) and Konrad Zou (Bonn University). In this paper, we prove the geometric Casselman Shalika formula in the setting of Witt vector Grassmanian.

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

In progress

Relative Langlands on the Fargues Fontaine, the Iwasawa Tate case, joint with Yuta Takaya (Tokyo University). We explicitly compare the period sheaves in the $\mathcal{A}$-side and $\mathcal{B}$-side, under the relative Langlands conjecctures of Benzvi-Sakellaridis-Venkatesh.

Mixed characteristic Iwahori-Whittaker equivalence, joint with Konrad Zou (Bonn University), this is an application of the previous paper on Casselman Shalika Formula, where we also prove basic properties of categorical actions in the l-adic setting.

Geometric categorical deformations, examples, joint with Anish Chedalavada (Johns Hopkins University). We are attempting to work on Lurie's 2010 ICM address on deformations of quantum groups.

Stacky approach to motivic periods, We give a stack interpretation of periods defined by Francis Brown, Pierre Deligne.

Seminars/talks

2024
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.*

Conferences/schools

2024
WARTHOG, Oregon, July 22nd-26th.
Summer School and Workshop on Relative Langlands Duality, Minnesota, June 3rd - June 8th.
Prospects of formal mathematics, Bonn, May 9th-16th.
Arizona Winter School, Abelian Varieties March 2nd - 6th.

2023
Geometry and topology meets data analysis and machine learning, Northeastern University, June 8th-June 10th.
MSRI Machine Learning, UC San Diego, June 26th -July 7th.
The arithmetic of Langlands Program, University of Bonn, Germany, May 1st - May 14th.
Non-archimedean geometry and eigenvarieties, University of Heidelberg, Germany, March 6th - March 17th.
Topological Hochschild Homology and Zeta Values, January 30th - February 3rd.

2020-2022
APAW, A pair of automorphic workshops, Oregon, July.
Motives and arithmetic groups, summer school in Strasbourg, June.
Workshop on Derived Geometry, CIRM Barcelona.
MSRI Higher Categories and Categorifications, Jan-March.

Teaching/supervision

Spring 2024
Directed Reading Program, organizer, Johns Hopkins University.

Fall 2023
SOUL Course, Interpretability in AI, Lecturer, Johns Hopkins University.
Honors Single Variable Calculus, Lecturer, Johns Hopkins Univeristy.
Directed Reading Program, organizer and mentor, Johns Hopkins University.

Spring 2023
Calculus III Head Teaching Assistant under Dr. Xiong Wang.
Directed Reading Program organizer with Benjamin Dees.
Directed Reading Program mentor.
Mentee: Orisis Zheng.
Topic: Zariski's lemma in algebraic geometry.

Fall 2022
Calculus II Teaching Assistant under Dr. Fajun Meng.
Directed Reading Program organizer with Benjamin Dees.
Directed Reading Program mentor.
Mentee: Orisis Zheng.
Topic: Maxwell Equations and differential geometry.
Mentee: Nick Lombardi.
Topic: Introduction to Langlands Program.