# Chen-Wei (Milton) Lin

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## Research Interests

**Mathematics:** Relative Geometric Langlands, $p$-Adic Geometry, Higher Category Theory, $K$-theory.
**Biology and AI:** Biologically Plausible Algorithms, Interpretability.

## Employment

*Dates mark with * are expected.*

**NSF-Simons National Institute for Theory and Mathematics in Biology**
Research Fellow, Winter 2026 – 2029*.

**Researcher, Chang Chun Petrochemical Co., Ltd., Taiwan**
Summer 2025 – Winter 2026*.

**Mandatory Military Service, Marine Corps, Taiwan**
66th Marine Brigade, Summer 2025 — Fall 2025.

## Education

**Johns Hopkins University, US**
Ph.D. of Mathematics, 2019 – 2025. Supervisor: Prof. David Gepner
Thesis title: The Casselman-Shalika formula in Perfect Geometry.

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

**University of Oxford, UK**
BA Mathematics, 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.

## Mathematical Publications/Preprints

**On a tamely ramified local relative Langlands conjecture via categorical representations** , **arXiv:2510.25231**. In this joint work we prove a slight variant of the tamely ramified local relative Langlands conjecture proposed by Devalapurkar.

**Mixed characteristic Geometric Casselman Shalika Formula**, **arXiv:2408.07953**, **submitted**. In this joint work we prove the geometric Casselma–Shalika formula in the setting of Witt vector Grassmanian.

**Integral aspects of Fourier Duality**, **Manuscripta Mathematica**. 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.

## 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 conjectures of Ben-Zvi-Sakellaridis-Venkatesh.

**Mixed characteristic Iwahori-Whittaker equivalence**, joint with Konrad Zou and Ashwin Iyengar, 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.

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

## Invited Talks

Rice Universty, March 31st, 2026.
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 $\sigma$-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.*

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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 $\infty$-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.*

## Other interests

Hiking, nature.

## Language

Mandarin (native), English (fluent).

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