Jeremy Wu

jeremywu@math.ucla.edu | LinkedIn | Website | Orcid

Research Experience

Hedrick Assistant Adjunct Professor

University of California, Los Angeles

- Mentors: Professor Inwon Kim and Professor Wilfrid Gangbo.
- Current Projects: Lagrangian techniques for cross-diffusion and nonlinear diffusion and Mean Field Games.
- Solving problems using new techniques and previous skills.
- Organised Graduate Seminar on 'Stochastic PDEs' Jan. Mar. 2023.

TEACHING EXPERIENCE

Instructor

University of California, Los Angeles

- Recipient of 2024 Liggett Distinguished Faculty Teaching Award.
- Lecturer for undergraduate mathematics courses.
- Organising, planning, and delivering lecture and homework content.
- Adapting and presenting material for in-person and online contact.
- Received positive feedback; "I truly believe Professor Wu may have been born to instruct Analysis."

Graduate Teaching Assistant

Imperial College London | University of Oxford

- Teaching undergaduates in small (1:2) and large $(\sim 1:100)$ weekly tutorials.
- Organising, planning, and marking tutorial content with a team in advance.
- Adapting and presenting material for physical and online tutorials.
- Received positive feedback; "[these tutorials] were probably the best I've had in Oxford."

EDUCATION

University of Oxford	2018 - 2022
Doctor of Philosophy in Mathematics	Oxford, UK
• Thesis title: The Landau Equation as a Gradient Flow.	
• Supervisors: Professor José Antonio Carrillo and Assistant Professor Matias Delgadino.	
• 2020 – Awarded the Mathematical Institute Award for support during the PhD.	
University of Cambridge	2017 - 2018
Master of Advanced Studies in Mathematics (Distinction)	$Cambridge, \ UK$
• Essay title: Non-standard Analysis.	
• Essay Supervisor: Doctor Thomas Forster.	
• 2018 – Awarded the Thatcher Prize for distinguished performance in examinations.	
Imperial College London	2013 - 2017
Master of Science in Mathematics (1st class)	London, UK
• Thesis title: Inviscid flow past a wedge.	
• Essay Supervisor: Professor Anatoly Ruban.	
• 2018 – Awarded the President's Scholarship for support during the PhD (prior to transferring to Oxford).	
• 2017 – Awarded the Governors' Prize for best performance in Mathematics.	
• 2016 – Awarded the Derek Moore Memorial Prize for excellence in Applied and Computational Mathematics.	
• 2015 – Awarded the Institute of Mathematics and its Applications Prize for excellence in Applied Mathematics.	

September 2022 – current

September 2022 – current

Los Angeles, CA

Los Angeles, CA

UK

October 2016 – 2022

 Nonlocal particle approximation for linear and fast diffusion equations Joint work with J. A. Carrillo, A. Esposito, and J. Skrzeczkowski 	2024 (Preprint)
 Mean Field Limit for Congestion Dynamics in One Dimension Joint work with I. Kim and A. Mellet. Published in Communications in Partial Differential Equations. 	October 2024
 The Landau equation as a Gradient Flow Joint work with J. A. Carrillo, M. G. Delgadino, and L. Desvillettes. Published in Analysis & PDE. 	May 2024
 Nonlocal approximation of nonlinear diffusion equations Joint work with J. A. Carrillo and A. Esposito. Published in Calculus of Variations and Partial Differential Equations. 	April 2024
 Aggregation-diffusion phenomena: from microscopic models to free boundary p Joint work with I. Kim and A. Mellet. To appear in Active Particles (Volume 4). 	oroblems December 2023
 Convergence of a particle method for a regularized spatially homogeneous Land Joint work with J. A. Carrillo and M. G. Delgadino. Published in Mathematical Models and Methods in Applied Sciences. 	dau equation March 2023
 An Invariance principle for gradient flows in the space of probability measures Joint work with J. A. Carrillo and R. Gvalani. Published in Journal of Differential Equations. 	February 2023
 Boltzmann to Landau from the Gradient Flow Perspective Joint work with J. A. Carrillo and M. G. Delgadino. Published in Nonlinear Analysis volume 219, page 112824. 	February 2022
 A particle method for the homogeneous Landau equation Joint work with J. A. Carrillo, J. Hu, and L. Wang. Published in Journal of Computational Physics. 	June 2020
ACADEMIC ACTIVITIES	
Optimal Transport and Dynamics Invited speaker • Presented Mean Field Limit for Congestion Dynamics in One Dimension	11-16 August 2024 Oaxaca, Mexico
 International Congress on Industrial and Applied Mathematics 2023 Minisymposium speaker Presented Nonlocal approximation of nonlinear diffusion equations at the Sca Particle Systems workshop. 	20-25 August 2023 Tokyo, Japan aling Limits of Interacting
 SIAM Conference on Analysis of PDEs (PD22) Minisymposium speaker and organiser Organised and co-chaired the sessions of "Challenges in the Kinetic Modelling of Com Minisymposium. Presented Boltzmann to Landau from the Gradient Flow Perspective. 	14-18 March 2022 Berlin, Germany (virtual) nplex Systems"
Frontiers in kinetic theory - KineCon 2022 Invited speaker and participant	January - June 2022 Cambridge, UK
 Presented The Landau equation as a Gradient Flow. Presented Boltzmann to Landau from the Gradient Flow Perspective at the for plasmas and collective behavior workshop. 	Frontiers in kinetic equations

TECHNICAL SKILLS

Languages: English (native), German (A1), Mandarin Chinese (Basic).

 $\textbf{Coding: } \texttt{LAT}_{E\!X}, \, \texttt{Matlab}, \, \texttt{Maple}, \, \texttt{Python}, \, \texttt{HTML}, \, \texttt{CSS}.$

TRANSFERABLE SKILLS

Leadership: Directing recent research projects.

Teamwork: Eagerly willing to cooperate with others for research projects and teaching responsibilities.

Organisation: Committed to planning and balancing my research, teaching commitments, and academic activities.

Independence: Dedicated to pursuing research direction without supervision.

Problem Solving: Highly trained in logical reasoning from education and current research projects.