Eddy Keming Chen

Curriculum Vitae

Contact Department of Philosophy MC 0119 +1 (858) 534 9281

Information University of California, San Diego eddykemingchen@ucsd.edu

9500 Gilman Drive, La Jolla, CA 92093-0119

Website www.eddykemingchen.net

Specialization Philosophy of Physics; Philosophy of Science; Metaphysics.

(AOS)

Competence Chinese Philosophy; Decision Theory; Formal Epistemology;

(AOC) Philosophy of Mathematics; Philosophy of Religion.

EMPLOYMENT Assistant Professor, Department of Philosophy, Jul 2019-present

University of California, San Diego

Other Associate Editor, Foundations of Physics Jul 2020-present

Affiliations

Fellow, John Bell Institute for the Foundations of Physics Aug 2018-present

Affiliated Faculty, Chinese Studies Program, UC San Diego Jan 2020-present

EDUCATION Rutgers University, New Brunswick

Ph.D., Philosophy, May 2019

• Thesis: Essays on the Metaphysics of Quantum Mechanics

• Committee: Barry Loewer (co-chair), David Albert (co-chair), Sheldon Goldstein (mathematics), Tim Maudlin (external), Jill North, Jonathan Schaffer, Ted Sider

M.Sc., Mathematics (Mathematical Physics), May 2019

• Thesis: Quantum States in a Time-Asymmetric Universe

• Committee: Sheldon Goldstein (chair), Michael Kiessling, Joel Lebowitz, Roderich Tumulka

Graduate Certificate in Cognitive Science, Dec 2018

• Thesis: Comparativism about Mental Qualities

• Advisor: Matthew Stone

Calvin College

B.S., Mathematics (Major), Physics (Minor), May 2013

B.A., Philosophy (Highest Honors), May 2013

- Thesis: Singular Propositions, Truth-In/At, and Modality De Re/De Dicto
- Supervisors: Alvin Plantinga and Stephen Wykstra

National University of Singapore

Enrolled in Mathematics and Physics Undergraduate Modules, 2009-2010

BOOK UNDER CONTRACT 1. Laws of Physics

Cambridge University Press, in preparation

ARTICLES

- 1. "Fundamental Nomic Vagueness" The Philosophical Review, 2022.
- "From Time Asymmetry to Quantum Entanglement: The Humean Unification" Noûs, 2020 [2022].
- 3. "Uniform Probability Distribution over All Density Matrices" (with Roderich Tumulka)

Quantum Studies: Mathematics and Foundations, 2022

4. "Quantum Mechanics in a Time-Asymmetric Universe: On the Nature of the Initial Quantum State"

The British Journal for the Philosophy of Science, 2018 [2021]

Awarded the 2021 BJPS Popper Prize

- 5. "Time's Arrow and Self-Locating Probability" Philosophy and Phenomenological Research, 2021
- 6. "Surreal Decisions" (with Daniel Rubio) Philosophy and Phenomenological Research, 2018 [2020]
- 7. "Realism about the Wave Function" *Philosophy Compass*, 2019
- "Our Fundamental Physical Space: An Essay on the Metaphysics of the Wave Function" The Journal of Philosophy, 2017
- 9. "Great Expectations: Introducing Surreal Decision Theory" (with Daniel Rubio) Wiebe van der Hoek, Wesley H. Holliday, Wen-fang Wang (eds.), *Proceedings of the 5th International Workshop on Logic, Rationality, and Interaction (LORI-V)*, Volume LNCS 9394, pp. 53–63. Springer-Verlag Berlin Heidelberg, 2015.

CHAPTERS IN EDITED VOLUMES

- 1. "Governing without a Fundamental Direction of Time: Minimal Primitivism about Laws of Nature" (with Sheldon Goldstein)
 Yemima Ben-Menahem (ed.), Rethinking the Concept of Law of Nature, Springer, 2022
- 2. "The Past Hypothesis and the Nature of Physical Laws"
 Barry Loewer, Eric Winsberg, and Brad Weslake (ed.), Time's Arrows and the Probability Structure of the World, Harvard University Press, forthcoming
- 3. "Bell's Theorem, Quantum Probabilities, and Superdeterminism" Eleanor Knox and Alastair Wilson (eds.) *The Routledge Companion to the Philosophy of Physics*, 2021
- 4. "The Cosmic Void"
 Sara Bernstein and Tyron Goldschmidt (eds.), Non-Being: New Essays on the Metaphysics of Non-Existence, Oxford University Press, 2021.
- 5. "Time's Arrow in a Quantum Universe: On the Status of Statistical Mechanical Probabilities"

 Valia Allori (ed.) Statistical Mechanics and Scientific Explanation: Determinism

Valia Allori (ed.), Statistical Mechanics and Scientific Explanation: Determinism, Indeterminism and Laws of Nature, World Scientific, 2020

BOOK REVIEW

1. Richard Healey, The Quantum Revolution in Philosophy The Philosophical Review, 129 (2): 302-308, 2020.

Under Review

- 1. "The Intrinsic Structure of Quantum Mechanics" [arXiv:1810.06551]
- 2. "Strong Determinism" [arXiv:2203.02886]
- 3. "Evil and the Quantum Multiverse" (with Daniel Rubio)

Papers in Preparation

- 1. "The Simplicity of Physical Laws"
- 2. "The Wentaculus: Density Matrix Realism Meets the Arrow of Time"
- 3. "Density Matrix Realism"
- 4. "Branching and the Born Rule for a Mixed-State Everettian Multiverse" (with Eugene Chua)
- 5. "Humean Typicality" (with Sheldon Goldstein, Dustin Lazarovici, and Isaac Wilhelm)
- 6. "Non-Humean Typicality" (with Isaac Wilhelm)
- 7. "Comparativism about Mental Qualities"
- 8. "Surreal Decision Theory for Infinite State Spaces" (with Daniel Rubio)
- 9. "A Hybrid Voluntarist Interpretation of Xunzi"

POPULAR WRITINGS

- 1. "The Wentaculus, Time's Arrow, Laws and Vagueness" Interview with Richard Marshall in the End Times Series at 3:16AM
- "The Quantum Wave Function Isn't Real" (based on "Quantum Mechanics in a Time-Asymmetric Universe: On the Nature of the Initial Quantum State")
 The Institute of Art and Ideas (IAITV), April 29, 2022
- 3. "Welcome to the Fuzzy-Verse" (based on "Nomic Vagueness")
 Featured on the cover as "The Flaw at the Heart of Reality: Why precise mathematical laws can never fully explain the universe"
 New Scientist, Issue 3298, Sep 5, 2020 [Penultimate] [Magazine]
- 4. (With Isaac Wilhelm) "From Ants to Quantum Non-Locality" The Daily Ant, July 2017 [Link]

Grants

1. Member of the "Life on the Edge" project, funded by a \$3 million grant from the John Templeton Foundation, Dec 2021-Jun 2024

SELECTED HONORS AND AWARDS

The 2021 BJPS Popper Prize

2022

University of California, San Diego

• Academic Senate Award for Summer Research 2021

Rutgers University

• Harvey Waterman Medal of Excellence	2019
• Presidential Fellowship for Doctoral Studies	2013, 14, 17
• Mellon Fellowship for Summer Research	2017

SCP-Templeton Graduate Fellowship for Cross Training in Physics
 Book prize for the best presentation at the Sydney University
 Winter School on Physics and Philosophy of Time

APA Graduate Student Travel Stipend
 Rutgers Graduate School Travel Stipend
 2014, 15, 16

	• Summer Special Study Fellowship	2015, 16
	Calvin College • Presidential Scholarship	2010-13
	William Rinck Memorial Prize	2013
	for Best Graduating Senior in Mathematics • Van Der Woude Award in Science Division	2011, 12
	Bouwsma Prize for Best Paper in Philosophy	2011, 12
	Bouwsma Award for Excellence in Philosophy	2011
	 Konyndyk Scholarship for Excellence in Philosophy 	2011
	National University of Singapore	
	• SM2-GLC Undergraduate Full Scholarship,	2007-10
	Ministry of Education, Singapore • The University Scholars Program	2009-10
	• Valedictorian for SM2-GLC Scholarship Recipients	2009
Visiting	Australian National University	Jun-Jul 2017
FELLOWSHIPS	Research School of Social Sciences,	
	Faculty Sponsor: Alan Hájek	M A 2017
	University of Southern California Department of Philosophy,	Mar-Apr 2017
	Supervisor: David Wallace	
	University of Bristol	Sep 2016
	Department of Philosophy,	
	Faculty Sponsor: Richard Pettigrew	I A 2012
	University of Oxford Undergraduate Visiting Student	Jan-Apr 2012
SELECTED PRESENTATIONS	 The Simplicity of Physical Laws Pacific APA symposium presentation CalTech Philosophy of Physics Group University of Western Ontario Philosophy of Physics Group 	Apr 2023 Oct 2022 Oct 2022
	Strong Determinism	000 2022
	• Colloquium, University of British Columbia	Mar 2023
	• Tel Aviv Conference on the Many-Worlds Interpretation	Oct 2022
	• Colloquium, UC Riverside	May 2022
	• Colloquium, Logic and Philosophy of Science, UC Irvine	May 2022
	 CalTech Philosophy of Physics Group CLE Permanent Seminar in Metaphysics, University of Campinas 	Apr 2022 Apr 2022
	• UCSD Metaphysics Reading Group	Apr 2022
	• Quantum Foundations Seminar, Surrey University	Oct 2021
	• California Quantum Information Network	Sep 2021
	Governing without a Fundamental Direction of Time: Minimal Primitivism about Laws of Nature	
	• CLE Permanent Seminar in Metaphysics, University of Campinas	Jul 2022
	Warsaw Spacetime Colloquium	Jun 2022
	• Philosophy of Time Association, Pacific APA (cancelled)	Apr 2022
	• Graduate Seminar in Philosophy of Science, UIUC • Research Crown in Metaphysics (cides) and the Concess Symmetry (Oct 2021
	 Research Group in Metaphysics (eidos) and the Geneva Symmetry C Metro Area Philosophy of Science Group (MAPS) 	Oct 2021
	CalTech Philosophy of Physics Group	Oct 2021
	Metaphysics Reading Group, Rutgers University	Oct 2021

Nomic Vagueness	N. 0004
• 27th Biennial Meeting of the Philosophy of Science Association	Nov 2021
• (Invited) Pontifical University of St. Thomas Aquinas, Italy	Jan 2021
• (Invited) Harvard Foundations of Physics Mini-Workshop	July 2020
• (Invited) CalTech philosophy of physics reading group	May 2020
• (Invited) Delta 13 Workshop on Logic	May 2020
• (Invited) University of Illinois, Chicago	Feb 2020
• (Invited) Foundations of Physics Conference, Columbia University	Nov 2019
• (Invited) Early Career Philosophy of Physics Workshop, CCNY	May 2019
 The Wentaculus: Density Matrix Realism Meets the Arrow of Tin (Invited) Graduate Seminar in Philosophy of Physics, Rutgers University (Invited) Philosophy of Physics Research Seminars, University of Oxford (Invited) Density Matrix Realism Workshop, University of Birmingham 	Apr 2022 Jan 2021
 Boltzmannian Quantum Statistical Mechanics (Invited) Black Forest Summer Conference on Foundations of Physics due to COVID-19) 	(Cancelled Jul 2020
Varieties of Intrinsicality • Science Without Numbers: 40 years later	Nov 2020
The Cosmic Void and Non-Fundamental Facts	
• (Invited) "Defining Nothingness" Conference, HSE University Moscow	Jan 2022
• (Invited) APA Symposium "Metaphysics Without Ontology"	Feb 2020
From Time Asymmetry to Quantum Entanglement: The Humean U	
• (Invited) Humean Laws Workshop	June 2020
Time's Arrow in a Quantum Universe	
• (Invited) Mathematical Physics Seminar, University of Tübingen	$Mar\ 2019$
• (Invited) University of California, San Diego	Feb 2019
• (Invited) University of Wisconsin, Madison	$\mathrm{Jan}\ 2019$
• (Invited) Tsinghua University (commented by Shan Gao)	Jan 2019
• (Invited) Wuhan University	Jan 2019
• (Invited) HUST (commented by Wan Xiaolong)	Jan 2019
• (Invited) Cornell University	Feb 2018
• (Invited) University of Wisconsin, Milwaukee	Feb 2018
• Philosophy of Cosmology Session, German Physical Society, Munich	Mar 2019
• Philosophy of Science Association, Seattle	Oct 2018
• Summer School on Entropy, Split	Jul 2018
• Western Ontario Philosophy of Logic, Mathematics, and Physics	Jun 2018
Graduate Student Conference	T 0010
• Rotman Summer Institute in Philosophy of Cosmology	Jun 2018
Time's Arrow Without Statistical Mechanical Probabilities	
• Philosophy of Time Association, Central APA, Denver	Feb 2019
• Rutgers Seminar on the Foundations of Probability	Nov 2018
Comparativism about the Mind: From Metaphysics of Quantitie	es to the
Nature of Mentality	
• (Invited) Rutgers-Bochum Workshop in Philosophy & Cognitive Science	Mar 2019
• 24th World Congress of Philosophy, Beijing	Aug 2018
	_
An Intrinsic Theory of Quantum Mechanics: Progress in Field's Nor Program	mmanstic
• (Invited) UC Irvine, Logic and Philosophy of Science (LPS)	Apr 2017
• (Invited) Bristol Center for Science and Philosophy	Sep 2016
(JUP 2010

Pacific APA symposium presentation (commented by Thomas Barrett and Rhys Borchert) Alanda and Al		2018
• 3rd Annual Meeting of the Society for the Metaphysics of Science (SMS) (commented by David Glick)		
 18th UK and European Conference on Foundations of Physics, London 4th Black Forest Philosophy of Physics Summer School, Saig 		2016 2016
Our Fundamental Physical Space: An Essay on the Metaphysic	cs of	the
Wavefunction	λſ	0017
 (Invited) University of Illinois, Chicago Central APA symposium presentation (commented by Nick Huggett) 	Mar Mar	2016
• 1st Annual Meeting of the Society for the Metaphysics of Science (SMS).		
(commented by Vishnya Maudlin)	, 000	2010
• 3rd Black Forest Philosophy of Physics Summer School, Saig	Jul	2015
The Best Summary of the Quantum World: The Universal Wavefu	nctio	on as
a Humean Law	ъ	2011
• (Invited) Tsinghua University Philosophy of Science Colloquium		2015
• 15th Congress of Logic, Methodology, and Philosophy of Science,	_	2015
 2nd Black Forest Philosophy of Physics Summer School, Saig Princeton Workshop on Technical Philosophy of Physics 		2014 2014
Our Knowledge of the Past: Some Puzzles about Time's Arrow Locating Probabilities	and	Self
• (Invited) 3rd Boulder Workshop in Formal Value Theory	Mar	2018
• (Invited) The College of William and Mary		2018
• (Invited) Wuhan University		2017
• (Invited) CalTech, History and Philosophy of Science Series		2017
• (Invited) University of Bristol	Sep	2016
• Sydney University Winter School on Physics and Philosophy of Time Winner of the book prize for the best presentation	Jul	2017
Australasian Association of Philosophy (AAP) Annual Meeting,	Jul	2017
• Time and Causality in the Sciences Conference (TaCitS),		2017
• UC San Diego, Philosophy	Apr	2017
• UC Riverside Workshop on Epistemology and Philosophy of Mind	Mar	2017
Space-Time Emergence: A Representational Theory		
• (Invited) Philosophy of Cosmology Workshop, CUNY Graduate Center	May	2017
Great Expectations: Introducing Surreal Decision Theory (co-auth Daniel Rubio)	nored	with
• (Invited) Peking University	Dec	2015
• (Invited) Princeton Workshop on Intrinsic Values (Sanders Foundation Website Video Link)		2015
• 5th International Congress on Logic, Rationality, and Interaction	Oct	2015
• 15th Congress of Logic, Methodology, and Philosophy of Science		2015
Pittsburgh-CMU Graduate Conference in Philosophy	_	2015
Pascal's Wager Meets Surreal Numbers (co-authored with Daniel Rub	oio)	
• (Invited) Work-in-Progress reading group, Bristol University	,	2016
• (Invited) Xiamen University Philosophy Department	May	
A Xunzian Puzzle about Meta-Ethics		
• (Invited) Skype lecture in Hu Jing's seminar on Chinese Philosophy at Washington and Lee University	Mar	2016

	• (Invited) Department of Electrical Engineering, Wuhan University	Jan 2016
	Singular Propositions, Ontological Dependence, and the 'Truth-in/-at' Distinction	
	• Calvin College Philosophy Symposium	Nov 2012
	Quantum Modeling of Recollision Excitation and Non-Sequenti Ionization of Helium	al Double
	Western Michigan Regional Undergraduate Science Research Conference Van Andel Institute, Grand Rapids, Michigan	e Oct 2012
	Calvin College Physics Departmental Seminar	Sep 2012
COMMENTS	Alan Hájek's "The Revenge of Pascal, Petersburg, Pasadena, and • (Invited) Workshop on Cognitive Values, CU Boulder	Paul'' Mar 2017
	Ned Hall's "Causation and the Aim of Inquiry" • Rutgers Philosophy Department Colloquium	Feb 2016
	Niels Martens's "Comparativism about Mass and the Initial Variable Problem"	
	• (Invited) Metaphysics of Quantities Conference, NYU	May 2015
	Thomas Senor's "Disagreement, Evidence, and Perception" • (Invited) Meiguo Metaphysics Mayhem, Peking University	Jun 2012
TEACHING	PHIL 120 - Symbolic Logic PHIL 285 - Core Seminar in Philosophy of Science: Arrows of Time PHIL 245 - Core Seminar in Philosophy of Science: Laws of Nature PHIL 130 - Metaphysics Spring 2020,21; V	Fall 2020,21 Fall 2020 Spring 2020 Spring 2021 Vinter 2023 Fall 2019,21
	At Rutgers University, New Brunswick PHIL 319 - Philosophy of Mathematics PHIL 475 - Chinese Philosophy	Fall 2016 Spring 2016
	Co-Chair (with Harry Crane and Dimitris Tsementzis) Fall 2016 - S PHIL 603 - Graduate Seminar on the Foundations of Probability Joint Seminar of Philosophy and Statistics Depts., Rutgers University	Spring 2018
	Graduate Supervision: JiMin Kwon (UCSD), dissertation committee Joseph Martinez (UCSD), dissertation committee Eugene Chua (UCSD), third-year paper committee Weixin Cai (UCSD), first-year advisor Weixin Cai (UCSD), 'Simplicity,' independent study, summer 2022 Andy Sin (UCSD), 'Quantum Humeanism,' independent study, fall 2022 Bosco Garcia (UCSD), first-year advisor	2
	Undergraduate supervision: Cheng Chang (UCSD): Determinism, Triton Research and Experiential Scholars (TRELS), fall 2021	al Learning

What is Analytic Philosophy?

2020

Greyson Sims (UCSD): Philosophy of Quantum Mechanics, independent study, fall

Copyrige	Contributions to Academic Community	
SERVICE	Contributions to Academic Community	0020 progent
	· · · · · · · · · · · · · · · · · · ·	2020-present
	• Chair of the program committee, Society for the Metaphysics of Science	2022 2021
	 Program committee, Society for the Metaphysics of Science Co-Organizer, conference "Science Without Numbers, 40 Years Later" 	Nov 2020
	g ,	2020-present
		-
	• Co-Organizer, Rutgers-Columbia Workshop on Quantum Field Theories	•
	Organizer, Rutgers Workshop on Structural RealismCo-Organizer,	May 2017 Jun 2016
	Rutgers Workshop on Multiverse, Theodicy, and Fine-Tuning	Jun 2010
	• Organizer, Metro Area Philosophy of Science Lecture Series (MAPS)	2015-17
	• Organizer, Rutgers Philosophy of Science Reading Group	2013-17
	• Co-organizer, Rutgers Metaphysics Reading Group	2015-16
	• Rutgers Philosophy Department Colloquium Committee	2014-16
		2014-10
	Contributions to Diversity and University Service	2022 22
	• Organizer of the UCSD philosophy department colloquium series	2022-23
	Guest lecture on Confucianism at Grossmont College Instructor for the Craduate School Application Workshop, LICSD Supplementary	Nov 2022
	• Instructor for the Graduate School Application Workshop, UCSD Summer Program for the Advancement of Women in Philosophy (SPAWP)	Jul 2022
	• Advisory board, UCSD Summer Program for the Advancement of	Jui 2022
	Women in Philosophy (SPAWP)	2021-22
	• Graduate admissions subcommittee in logic and philosophy of science	2021-22
	• Guest speaker on Confucianism at Grossmont College	Oct 2022
	• Designer of a DEI version of a class on Chinese Philosophy	Apr 2021
	• Designer and grader of graduate student logic exemption test	Sep 2020
	• Reviewer, undergraduate honors thesis in philosophy of physics	Apr 2020
	• Mock interviewer for job-market candidates	2020, 2021
	• Participation in the design and proposal of the Chinese philosophy class	
	• Panelist, admissions committee, and advisory board,	
	Summer Program for Women in Philosophy, UCSD	2019-21
	• Faculty speaker, Preparing Accomplished Transfers to the Humanities	
	(PATH) Program, San Diego Community College District	Dec 2019
	• Commentator-at-large, New York-China Epistemology Conference	Oct 2018
	• Rutgers Philosophy Department Climate Committee	2016-17
	• Graduate Panelist, Rutgers Summer Institute for Diversity in Philosoph	
	• Rapporteur, 3rd and 4th Rutgers Workshops on Chinese Philosophy	2016, 2017
	• Participant, Muslim-Jewish-Christian Interfaith Dialogue	May 2016
	on Providence and Randomness	A 0010
	• Discussion Leader, Rutgers University International TA Orientation	Aug 2016
Depresen	- Australia I. Januari of Dhilanacha (MA)	
Referee	 Australasian Journal of Philosophy (×4) British Journal for the Philosophy of Science (×10) 	
	• Erkenntnis (×5)	
	• Ergo (×3)	
	• European Journal for Philosophy of Science (×4)	
	• Foundations of Physics	
	• Internet Encyclopedia of Philosophy	
	• Journal of the American Philosophical Association	
	• Journal for General Philosophy of Science (×3)	
	• Mind (×3)	
	• $No\hat{u}s$ (×2)	
	Pacific Philosophical Quarterly	
	• Philosophy and Phenomenological Research	

- Philosophers' Imprint
- Philosophia Mathematica
- Philosophical Studies (×5)
- Philosophy of Science (×6)
- Proceedings of the Italian Society for Logic and Philosophy of Science
- Scientific Reports
- Statistical Science
- Studies in History and Philosophy of Science Part A (×2)
- Studies in History and Philosophy of Science Part B: Studies in History and Philosophy of Modern Physics (×5)
- $Synthese~(\times 12)$
- Theoria
- Theory of Science
- Cambridge University Press
- Oxford University Press
- Springer
- Routledge
- European Research Council
- The Atlantic
- Bloomsbury Academic

OTHER WORK AND RESEARCH

Editorial Assistant

Spring 2017

Summer 2012

For Ernest Sosa and Georgi Gardiner Nôus, PPR, Philosophical Issues

National Science Foundation (NSF) Research Fellowship

20.00

Topic: Theoretical Physics and Computer Modeling:

Recollision Excitation and Non-Sequential Double Ionization of Helium

Supervisor: Stan L. Haan Department of Physics, Calvin College

Summer Research Fellowship

 $Summer\ 2011$

Topic: Mencius (Mengzi) and the Concept of Tian

Supervisor: Kelly James Clark Department of Philosophy,

Calvin College

Undergraduate Research Assistant

2008-2010

Topic: Membrane Distillation for Water Purification with Reverse Osmosis

Supervisor: Tai-Sheng Chung

Chemical and Biomolecular Engineering,

National University of Singapore

Intern at The New York Times

Summer 2010

Interviews, data analysis, and research on business, economics, culture,

and the arts in China

Supervisor: David Barboza (2013 Pulitzer Prize Winner)

The New York Times, Shanghai Bureau

Last updated: November 3, 2022. Personal webpage: www.eddykemingchen.net