
CONTACT INFORMATION	106 Somerset St., 5th Floor, Philosophy Department, Rutgers University New Brunswick, NJ 08901	+1 (616) 881 1468 eddyckm@gmail.com
WEBSITE	www.eddykemingchen.net	
SPECIALIZATION (AOS)	Philosophy of Physics; Philosophy of Science; Metaphysics.	
COMPETENCE (AOC)	Chinese Philosophy; Decision Theory; Formal Epistemology; Philosophy of Mathematics; Philosophy of Religion.	
PUBLICATIONS	<ol style="list-style-type: none"> 1. “Our Fundamental Physical Space: An Essay on the Metaphysics of the Wave Function” <i>The Journal of Philosophy</i>, 114(7), 2017: 333-65. [Penultimate] [Journal] 2. “Quantum Mechanics in a Time-Asymmetric Universe: On the Nature of the Initial Quantum State” <i>The British Journal for the Philosophy of Science</i>, forthcoming. [arXiv:1712.01666] 3. (with Daniel Rubio) “Surreal Decisions” <i>Philosophy and Phenomenological Research</i>, 2018. [Penultimate] [Journal] 4. (with Daniel Rubio) “Great Expectations: Introducing Surreal Decision Theory” Wiebe van der Hoek, Wesley H. Holliday, Wen-fang Wang (eds.), <i>Proceedings of the 5th International Workshop on Logic, Rationality, and Interaction (LORI-V)</i>, Volume LNCS 9394, pp. 53–63. Springer-Verlag Berlin Heidelberg, 2015. 	
INVITED	<ol style="list-style-type: none"> 1. “Time’s Arrow in a Quantum Universe: On the Status of Statistical Mechanical Probabilities” Valia Allori (ed.), <i>Statistical Mechanics and Scientific Explanation: Determinism, Indeterminism and Laws of Nature</i>, World Scientific, forthcoming. 2. “Realism about the Wave Function” <i>Philosophy Compass</i>, submitted [PhilSci-Archive:15153] 3. Review of <i>The Quantum Revolution in Philosophy</i> by Richard Healey <i>The Philosophical Review</i>, in preparation. 	
UNDER REVIEW	<ol style="list-style-type: none"> 1. “The Intrinsic Structure of Quantum Mechanics” [PhilSci-Archive:15140] 	
PAPERS IN PREPARATION	<ol style="list-style-type: none"> 1. “Our Knowledge of the Past: Some Puzzles about Time’s Arrow and Self-Locating Probabilities” 2. “Comparativism about the Mind: From Metaphysics of Quantities to the Nature of Mentality” 3. (with Daniel Rubio) “Surreal Decision Theory for Infinite State Space” 4. “A Hybrid Voluntarist Interpretation of Xunzi” 	

EDUCATION

Rutgers University, New Brunswick

Ph.D., Philosophy, *Expected:* 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), *Expected:* Jan 2019

- Thesis: *Quantum Mechanics in a Time-Asymmetric Universe*
- Committee: Sheldon Goldstein (chair), Michael Kiessling, Joel Lebowitz, Roderich Tumulka

Graduate Certificate in Cognitive Science, *Expected:* Dec 2018

- Thesis: *Comparativism about Mental Qualities*
- Advisor: Matthew Stone

Calvin College

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

B.A., Philosophy (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

University Scholars Program

SM2-GLC Scholarship Bridging Course, 2008-2009

No.1 Middle School Affiliated with the Central China Normal University,
Wuhan, China

Diploma, Science Stream, 2008

VISITING
FELLOWSHIPS

Australian National University Research School of Social Sciences, Faculty Sponsor: Alan Hájek	Jun-Jul 2017
University of Southern California Department of Philosophy, Supervisor: David Wallace	Mar-Apr 2017
University of Bristol Department of Philosophy, Faculty Sponsor: Richard Pettigrew	Sep 2016
University of Oxford Undergraduate Visiting Student	Jan-Apr 2012

SELECTED
HONORS AND
AWARDS

Fellow, the John Bell Institute for the Foundations of Physics	Ongoing
Rutgers University	
• Presidential Fellowship for Doctoral Studies	2013, 14, 17
• SCP-Templeton Graduate Fellowship for Cross Training in Physics	2017-18
• Mellon Fellowship for Summer Research	2017
• APA Graduate Student Travel Stipend	2016
• Rutgers Graduate School Travel Stipend	2014, 15, 16
• Summer Special Study Fellowship	2015, 16
Calvin College	
• Presidential Scholarship	2010-13
• William Rinck Memorial Prize for Best Graduating Senior in Mathematics	2013
• Van Der Woude Award in Science Division	2011, 12
• Bouwsma Prize for Best Paper in Philosophy	2013
• Bouwsma Award for Excellence in Philosophy	2011
• Konyndyk Scholarship for Excellence in Philosophy	2011
National University of Singapore	
• SM2-GLC Undergraduate Full Scholarship, Ministry of Education, Singapore	2007-10
• The University Scholars Program	2009-10
• Valedictorian for SM2-GLC Scholarship Recipients	2009

SELECTED
PRESENTATIONS

Time's Arrow in a Quantum Universe	
• (Invited) Cornell University	Feb 2018
• (Invited) University of Wisconsin, Milwaukee	Feb 2018
• Philosophy of Science Association, Seattle	Oct 2018
• Summer School on Entropy, Split	Jul 2018
• Western Ontario Philosophy of Logic, Mathematics, and Physics Graduate Student Conference	Jun 2018
• Rotman Summer Institute in Philosophy of Cosmology	Jun 2018
• Work in Progress Seminar in Mathematical Physics, Rutgers	Apr 2018
Time's Arrow Without Statistical Mechanical Probabilities	
• Philosophy of Time Association, Central APA, Denver	Feb 2019
Comparativism about the Mind: From Metaphysics of Quantities to the Nature of Mentality	
• Rutgers Center for Cognitive Science	Oct 2018
• 24th World Congress of Philosophy, Beijing	Aug 2018
An Intrinsic Theory of Quantum Mechanics: Progress in Field's Nominalistic Program	
• (Invited) UC Irvine, Logic and Philosophy of Science (LPS)	Apr 2017
• (Invited) Bristol Center for Science and Philosophy	Sep 2016
• Pacific APA Symposium	Mar 2018
• 3rd Annual Meeting of the Society for the Metaphysics of Science (SMS), Fordham University	Oct 2017
• 18th UK and European Conference on Foundations of Physics, London	Jul 2016
• 4th Black Forest Philosophy of Physics Summer School, Saig	Jul 2016
Our Fundamental Physical Space: An Essay on the Metaphysics of the Wavefunction	
• (Invited) University of Illinois, Chicago	Mar 2016

- Central APA Symposium (with comments from Nick Huggett), Chicago Mar 2016
- 1st Annual Meeting of the Society for the Metaphysics of Science (SMS) Oct 2015
(with comments from Vishnya Maudlin), Rutgers University-Newark
- 3rd Black Forest Philosophy of Physics Summer School, Saig Jul 2015

The Best Summary of the Quantum World: The Universal Wavefunction as a Humean Law

- (Invited) Tsinghua University Philosophy of Science Colloquium Dec 2015
- 15th Congress of Logic, Methodology, and Philosophy of Science, University of Helsinki (CLMPS) Aug 2015
- 2nd Black Forest Philosophy of Physics Summer School, Saig Jul 2014
- Princeton Workshop on Technical Philosophy of Physics Mar 2014

Our Knowledge of the Past: Some Puzzles about Time's Arrow and Self-Locating Probabilities

- (Invited) 3rd Boulder Workshop in Formal Value Theory Mar 2018
- (Invited) The College of William and Mary Jan 2018
- (Invited) Wuhan University Dec 2017
- (Invited) CalTech, History and Philosophy of Science Series Apr 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, the University of Adelaide Jul 2017
- Time and Causality in the Sciences Conference (TaCitS), Stevens Institute of Technology Jun 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-authored with Daniel Rubio)

- (Invited) Peking University Colloquium on Logic, Language, and Cognition Dec 2015
- (Invited) Princeton Workshop on Intrinsic Values (Sanders Foundation Website Video Link) Nov 2015
- 5th International Congress on Logic, Rationality, and Interaction, National Taiwan University (LORI V) Oct 2015
- 15th Congress of Logic, Methodology, and Philosophy of Science, University of Helsinki (CLMPS) Aug 2015
- Pittsburgh-CMU Graduate Conference in Philosophy Mar 2015

Pascal's Wager Meets Surreal Numbers (co-authored with Daniel Rubio)

- (Invited) Work-in-Progress reading group, Bristol University Sep 2016
- (Invited) Xiamen University Philosophy Department May 2016
- Eastern Regional Meeting of the Society of Christian Philosophers, Messiah College Sep 2015

A Xunzian Puzzle about Meta-Ethics

- (Invited) Skype lecture in Hu Jing's seminar on Chinese Philosophy at Washington and Lee University Mar 2016

What is Analytic Philosophy?

- (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-Sequential Double
Ionization of Helium**

- Western Michigan Regional Undergraduate Science Research Conference Oct 2012
Van Andel Institute, Grand Rapids, Michigan
- Calvin College Physics Departmental Seminar Sep 2012

COMMENTS

Alan Hájek's "The Revenge of Pascal, Petersburg, Pasadena, and Paul"

- (Invited) Workshop on Cognitive Values, CU Boulder 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) Meigu Metaphysics Mayhem, Peking University Jun 2012

TEACHING

Primary Instructor Fall 2016

PHIL 319 - Philosophy of Mathematics
Rutgers University

Primary Instructor Spring 2016

PHIL 475 - Chinese Philosophy
Rutgers University

Co-Chair Fall 2016 - Spring 2018

(with Harry Crane and Dimitris Tsementzis)

PHIL 603 - Graduate Seminar on the Foundations of Probability
Joint Seminar of Philosophy and Statistics Depts., Rutgers University

Teaching Assistant Fall 2015

PHIL 108 - Introduction to Ethics
Instructor: Adam Shriver (UPenn)
Rutgers University

Teaching Assistant Spring 2011

PHIL 225 - Chinese Thought and Culture
Instructor: Kelly Clark
Calvin College

Grader Fall 2013

PHIL 407 - Intermediate Logic
Instructor: Thony Gillies
Rutgers University

Grader Fall 2011

PHIL 204 - Philosophy of Religion
Instructor: Kelly Clark
Calvin College

Instructor Sep 2014, Sep 2016

(Unofficial) Crash Course on the Foundations of Quantum Mechanics
for the Rutgers Philosophy Community

SERVICE

Conferences and Events

- Co-Organizer, Rutgers-Columbia Workshop on Quantum Field Theories May, 2018
- Organizer, Rutgers Workshop on Structural Realism May, 2017
- Co-Organizer, Rutgers Workshop on Multiverse, Theodicy, and Fine-Tuning Jun, 2016
- Organizer, Metro Area Philosophy of Science Lecture Series (MAPS) 2015-17
- Organizer, Rutgers Philosophy of Science Reading Group 2014-16
- Co-organizer, Rutgers Metaphysics Reading Group 2015-16
- Rutgers Philosophy Department Colloquium Committee 2014-16

Contributions to Diversity

- 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 Philosophy Jul 2017
- Rapporteur, 3rd and 4th Rutgers Workshops on Chinese Philosophy 2016, 2017
- Participant, Muslim-Jewish-Christian Interfaith Dialogue on Providence and Randomness May 2016
- Discussion Leader, Rutgers University International TA Orientation Aug 2016

Referee for: *Mind*, *Australasian Journal of Philosophy*, *Philosophical Studies*, *British Journal for the Philosophy of Science* ($\times 2$), *Philosophy of Science* ($\times 3$), *Erkenntnis* ($\times 2$), *Theoria*, *Statistical Science*, *Proceedings of the SILFS 2014—the Italian Society for Logic and Philosophy of Science Conference*, *The Atlantic*

OTHER WORK
AND RESEARCH**Editorial Assistant**

Spring 2017

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

National Science Foundation (NSF) Research Fellowship

Summer 2012

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

COURSEWORK
(*: AUDITED)

Philosophy of Physics and Philosophy of Science

Philosophy of Physics: Foundations of Quantum Mechanics. (David Albert)
Philosophy of Physics: Philosophy of Space and Time. (David Albert)
Philosophy of Physics: Direction of Time. (David Albert)
*Philosophy of Physics: Quantum Mechanics. (NYU: Tim Maudlin)
*Philosophy of Physics: Spacetime. (NYU: Tim Maudlin)
*Philosophy of Physics: Gauge Theories. (NYU: Tim Maudlin)
*Philosophy of Physics: Space and Time. (Jill North)
*Advanced Philosophy of Quantum Mechanics. (David Albert)
*Foundations of Quantum Mechanics. (Mathematics: Sheldon Goldstein)
*Philosophy of Science. (Barry Loewer)
*Logical Philosophy of Science. (Princeton: Hans Halvorson)

Metaphysics

Metaphysics: David Lewis's Philosophy of Science. (Barry Loewer)
*Metaphysics of Quantum Mechanics. (Jill North, Ted Sider)
*Metaphysics: Fundamentality. (Barry Loewer, Jonathan Schaffer)
*Seminar in Metaphysics. (Robert Adams)
*Philosophy of Mathematics: Applied Mathematics. (NYU: Hartry Field, Cian Dorr)
*Seminar in Metaphysics. (NYU: Kit Fine)
*Time and Modality. (NYU: Cian Dorr)
*Metaphysics: Modal Logic as Metaphysics. (Princeton: Delia Fara, Gilbert Harman)
*Metaphysics: Physicalism. (Princeton: Shamik Dasgupta, Boris Kment)

Cognitive Science, Linguistics, and Logic

Cognitive Science Proseminar. (Rutgers Center for Cognitive Science)
Semantics I. (Linguistics: Simon Charlow)
Model Theory. (Mathematics: Grigor Sarsyan)
Independent Study on Mental Qualities. (Computer Science: Matthew Stone)
*Philosophy of Language: Singular Thought. (Jeff King)
*Philosophy of Linguistics: Minimal Entities. (NYU: Kit Fine, Lucas Champollion)
*Category Theory. (Princeton: Hans Halvorson)

Epistemology and Decision Theory

*Decision Theory. (Princeton: Adam Elga)
*Bayesian Epistemology. (Branden Fitelson)
*Current Topics in Formal Epistemology. (Branden Fitelson)
*Epistemology. (Ernest Sosa)

Philosophy of Religion

Philosophy of Religion: Problems of Evil. (Marilyn Adams, Robert Adams, Dean Zimmerman)
*Philosophy of Religion. (Marilyn Adams)

Other Philosophy Courses

Independent Study on Chinese Philosophy. (Ruth Chang)
Ethics. (Derek Parfit, Ruth Chang)
Early Modern Philosophy of Mind. (Martin Lin)
Proseminar. (Andy Egan, Jonathan Schaffer)

Graduate-Level Mathematics and Physics

Real Analysis I. (Mathematics: Eric Carlen)
Abstract Algebra I. (Mathematics: Vladimir Retakh)
Mathematical Physics I. (Mathematics: Roderich Tumulka)
Mathematical Physics II. (Mathematics: Roderich Tumulka)
Statistical Mechanics: Equilibrium. (Mathematics: Sheldon Goldstein)
Statistical Mechanics: Non-Equilibrium. (Mathematics: Joel Lebowitz)

Bohmian Mechanics. (Mathematics: Sheldon Goldstein)
Mathematical Quantum Mechanics. (Mathematics: Michael Kiessling)
Mathematical Classical Mechanics. (Mathematics: Michael Kiessling)
*General Relativity. (Princeton Physics: Frans Pretorius)
*Overview of Quantum Field Theory. (Physics: Natan Andrei)

DISSERTATION
ABSTRACT

In my dissertation *Essays on the Metaphysics of Quantum Mechanics*, I trace various philosophical puzzles of quantum mechanics back to their source—the wave function. I first clarify how the wave function’s mathematical representation relates to the physical world. In “An Intrinsic Account of Quantum Mechanics: Progress in Field’s Nominalistic Program,” I show that the wave function represents four intrinsic relations on physical space-time, unique up to certain symmetries. Since my intrinsic account dispenses with any essential reference to mathematical objects, it extends Field’s nominalistic program to the quantum realm. In “Our Fundamental Physical Space: An Essay on the Metaphysics of the Wave Function,” I argue against *configuration space realism*, the view that physical space-time is “emergent” from the high-dimensional configuration space on which the wave function lives. Emphasizing the roles of dynamics and symmetries, I show that physical space-time is more fundamental than the configuration space. In “Quantum Mechanics in a Time-Asymmetric Universe: On the Nature of the Initial Quantum State,” I propose that we use the Past Hypothesis to pin down a simple and unique quantum state. In so doing, we discover a new way of thinking about the relationship between the quantum state and the arrow of time. The proposal leads to a new class of quantum theories that dispense with certain objective probabilities and reconcile quantum entanglement with both Lorentz invariance and Humean supervenience.

My dissertation brings together various topics in metaphysics and philosophy of science, including fundamentality, structuralism, explanation, theoretical equivalence, objective probability, and laws of nature.