Lu Chen
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Academic Position

Assistant Professor (tenure-track), Koç University, Istanbul, Turkey, 2020-current.

Education

Ph.D.	Philosophy, University of Massachusetts Amherst. 2014-2020.
	Committee Members: Phillip Bricker (chair), Alejandro Perez Carballo, Jeffrey Sanford Russell (USC), Alexei Oblomkov (Mathematics)
	Dissertation: *Continua*.
M.A.	Philosophy, University of Wisconsin, Milwaukee, 2012-2014.
M.A.	Philosophy, Fudan University, Shanghai, 2009-2012.
	Calvin College, visiting student, 2011-2012.
B.A.	Philosophy (with the Dean's Award), Fudan University, Shanghai, 2005-2009.

Areas of Specialization

Metaphysics, Philosophy of Mathematics & Physics, Philosophical Logic

Areas of Competence

Decision theory, Epistemology, Applied Ethics, Philosophy of Mind

Publications

- "Why the Weyl Tile Argument is Wrong," *British Journal for the Philosophy of Science* (forthcoming)

  Weyl famously argued that if space (or spacetime) were discrete, then Euclidean geometry cannot hold even approximately. I identify an importantly flawed assumption in Weyl's argument: physical geometry is determined by fundamental spacetime structures independently from the dynamical laws. I show its falsity through two rigorous examples: random walks in statistical physics and quantum mechanics.

- "Can we effectivize spacetime?" *Studies in History and Philosophy of Science Part B: Studies in History and Philosophy of Modern Physics* (forthcoming)

  According to *effective realism*, scientific theories give us knowledge about the unobservable world, but not at the fundamental level. This view is motivated by the well-received effective-field-theory (EFT) approach to physics, according to which our best physical theories are only applicable up to a certain energy scale. I challenge this view by raising an interpretative dilemma faced by all EFTs concerning their indispensable references to classical spacetime beyond their scope of validity.

- "Smooth Infinitesimals in the Metaphysical Foundation of Spacetime Theories" *Journal of Philosophical Logic* (2022)

I advance a classically consistent interpretation of Smooth Infinitesimal Analysis which is formulated in intuitionistic logic and is commonly considered to lack a classical interpretation. I advance the resulting theory as a novel approach to spacetime, which has infinitesimal regions playing the role of tangent space.

- "An algebraic approach to physical fields," with Tobias Fritz, *Studies in History and Philosophy of Science Part A* (2021).

  We propose a novel algebraic approach to physical theories according to which physical fields exist without an underlying manifold. Comparing to the standard formulation, our approach does not posit a ghostly scalar field in lieu of spacetime but treats all and only physical fields as fundamental. We use natural operations in category theory to implement this idea.

- "Intrinsic Local Distances: a Mixed Solution to Weyl's Tile Argument," *Synthese* (2021).

  Weyl's tile argument is a simple and influential argument against the view that our space is composed of extended indivisible "atoms." I advance a novel response to this argument by appealing to a new account of distance for atomistic space, and argue that this response is better than the current proposals.

- "Infinitesimal Gunk," *Journal of Philosophical Logic* (2020).

  A natural development of the gunky view, the view that there are no indivisible regions of space, violates standard measure-theoretic principles. I advance *Infinitesimal Gunk* as an alternative gunky view with a hyperreal-valued measure theory and argue that this view has distinctive advantages over the other proposals.

- "Do Simple Infinitesimal Parts Solve Zeno's Paradox of Measure?" *Synthese* (2020).

  It is sometimes suggested that space is composed of infinitesimal-sized points. I develop this view into a rigorous infinitesimal theory of continua. The theory has an attractive measure theory, but it also suffers from various problems, which leave it with no clear advantage over its familiar alternatives.

In submission

- *On the Essence of Renormalization* with Tobias Fritz

  We clarify the nature of renormalization in quantum field theory by reducing it to a very general prescription for defining a physical theory in the presence of divergences in terms of its predictions. Once this is clarified, we argue that renormalizable theories are phenomenological.

Talks

- "Regarding the Weyl Tile Argument" the 16th Biennial Homecoming Conference (invited), University of Massachusetts, 2022.

- "Regarding the Weyl Tile Argument" American Philosophical Association Pacific Division, 2022.

- "A defense of spacetime dynamicism" Koc Colloquium Talk 2021.

- "Intrinsic Local Distances: A Mixed Solution to Weyl's Tile Argument," American Philosophical Association Pacific Division, Online, 2021.

- "Toward A Metaphysics of Nilpotent Region," Society for the Metaphysics of Science Annual Conference, University of Toronto, November 2019.
- "Intrinsic Local Distances: A Mixed Solution to Weyl's Tile Argument," Philosophy of Logic, Mathematics, and Physics Graduate Conference, University of Western Ontario, June 2019.
- "Toward A Metaphysics of Nilpotent Region," University of Southern California, May 2019.
- "Toward A Metaphysics of Nilpotent Region," Eileen O'Neil Workshop for Women in Philosophy, Massachusetts, March 2019.
- "A Local Solution to Weyl's Tile Argument," Metaphysical Mayhem, Rutgers University, 2018.
- "Rescuing Justice from Cohen," Wisconsin Philosophical Association, Marquette University, 2013.

Services

- Commentary in APA eastern division 2021 (Symposium), 2022 (Colloquium); Society for the Metaphysics of Science Annual Conference, Toronto 2019.
- Referee for *Analysis, Philosophical Studies, Philosophical Quarterly, European Journal for Philosophy of Science, Chinese Philosophical Review, Inquiry.* 2020-current.
- Philosophy Colloquium Series organizor, Koc University. 2020-current.

Fellowships and Grants

- Seed Research Fund, Koc University, 2022-2023.
- Summer Dissertation Fellowship, Umass, 2018.
- Travel Grant for Graduate Students, Umass, 2017, 2018, 2019.
- Puryear Fellowship for First Year Students, Umass, 2014.
- Visiting Student Scholarship (the Templeton Foundation), Calvin College, 2011-2012.
- Fudan Graduate Student Scholarship, 2009, 2010, 2011.
- The Dean's Award in the School of Philosophy, Fudan, 2009.
- Fudan Undergraduate Distinguished Scholarship, 2007, 2008, 2009.
- Hong Kong People Distinguished Fellowship, 2006.

Teaching

Koç University

- Scientific Realism (Graduate seminar; Fall 2021)
- Metaphysics of Science (Graduate seminar; Spring 2021, 2022)

- Philosophical Paradoxes (Humanity core; Fall 2021)
- Space and Time (Humanity core; Spring 2021)
- Ontology (Undergraduate elective; Fall 2020, Spring 2022)

Umass, Amherst

- Philosophy of Science (Spring 2020)
- Medical Ethics (Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019)

Teaching Assistant

- Intro to Philosophy (Hilary Kornblith, Spring 2017; Ned Markosian, Fall 2016)
- Intro to Ethics (Chris Meacham, Spring 2016)
- Intro to Philosophy (Alejandro Perez Carballo, Fall 2015)
- Intro to Logic (Richard Tierney, Spring 2013; Joshua Spencer, Fall 2012)

References

- Phillip Bricker
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- Jeffrey Sanford Russell
  University of Southern California
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- Alejandro Pérez Carballo
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