

# Stanford

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## Xiaoliang Qi

Professor of Physics

### CONTACT INFORMATION

- **Administrative Contact**

LITP

**Email** [litpadmin@stanford.edu](mailto:litpadmin@stanford.edu)

### Bio

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#### BIO

My current research interest is the interplay of quantum entanglement, quantum gravity and quantum chaos. The characterization of quantum information and quantum entanglement has provided novel understanding to space-time geometry, and relate the dynamics of chaotic many-body systems to the dynamics of space-time, i.e. quantum gravity theory. Based on recent progress in holographic duality (also known as AdS/CFT), my goal is to use tools such as tensor networks and solvable models to provide more microscopic understanding to the emergent space-time geometry from quantum states and quantum dynamics.

I am also interested in topological states and topological phenomena in condensed matter systems.

You can find my recent research topics in some talks online:

<http://online.kitp.ucsb.edu/online/chord18/opgrowth/>

[https://www.youtube.com/watch?v=\\_\\_9VBaLfc6Y&t=42s](https://www.youtube.com/watch?v=__9VBaLfc6Y&t=42s)

[http://online.kitp.ucsb.edu/online/qinfo\\_c17/qi/](http://online.kitp.ucsb.edu/online/qinfo_c17/qi/)

#### ACADEMIC APPOINTMENTS

- Professor, Physics

#### ADMINISTRATIVE APPOINTMENTS

- Professor, Stanford University, (2019- present)
- Associate Professor, Physics, Stanford University, (2014-2018)
- Assistant Professor, Physics, Stanford University, (2009-2014)
- Postdoctoral Researcher, Microsoft Station Q, UC Santa Barbara, (2009-2010)
- Research Associate, Stanford Linear Accelerator Center, (2007-2009)

## HONORS AND AWARDS

- Simons Investigator, Simons Foundation (2018)
- The New Horizons in Physics Prize, The Breakthrough Prize Foundation (2015)
- Sackler International Prize, Physics, Raymond and Beverly Sackler, Tel Aviv University (2014)
- Hermann Kummel Early Achievement Award, in Many-Body Physics, International Conference Advisory Committee (2011)
- Packard Fellowship, David and Lucile Packard Foundation (2011)
- Sloan Fellowship, Sloan Foundation (2010)

## PROFESSIONAL EDUCATION

- Ph.D., Institute for Advanced Study, Tsinghua University , Physics (2007)
- B.S., Tsinghua University , Physics (2003)

## Teaching

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### COURSES

#### 2025-26

- Condensed Matter Theory II: PHYSICS 373 (Spr)

#### 2024-25

- Condensed Matter Theory I: PHYSICS 372 (Spr)
- Quantum Information Theory and Many-Body Physics: PHYSICS 472 (Aut)

#### 2023-24

- Condensed Matter Theory II: PHYSICS 373 (Spr)
- Quantum Information Theory and Many-Body Physics: PHYSICS 472 (Aut)

#### 2022-23

- Condensed Matter Theory I: PHYSICS 372 (Spr)

## STANFORD ADVISEES

### Doctoral Dissertation Advisor (AC)

Shoaib Akhtar, Haifeng Tang

### Doctoral Dissertation Co-Advisor (AC)

Jiaxuan Guo

### Doctoral (Program)

Kevin Crust, Olivia Ghosh, Alana Gudinas, Sandesh Kalantre, Heesoo Kim, Shayarneel Kundu, Willow Martin, Gabriel Moreau, Delon Shen