

Stanford



Xiaoliang Qi

Professor of Physics

CONTACT INFORMATION

- **Administrative Contact**

Donald J. Abuy

Email djabuy@stanford.edu

Bio

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

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

COURSES

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)

2021-22

- Condensed Matter Theory II: PHYSICS 373 (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Dan Stefan Eniceicu, Eli Fox, Alexander Frenkel, Tamra Nebabu, Nicholas O'Dea, Adel Rahman, Cynthia Yan

Doctoral Dissertation Advisor (AC)

Shoaib Akhtar, Aditya Cowsik, Haifeng Tang

Doctoral Dissertation Co-Advisor (AC)

Jiaxuan Guo

Doctoral (Program)

Vladimir Calvera, Kevin Crust, Olivia Ghosh, Alana Gudinas, Sandesh Kalantre, Heesoo Kim, Shayarneel Kundu, Gabriel Moreau, Adel Rahman, David Saykin, Delon Shen, Sungyeon Yang, Mark Zic