

# Stanford

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## Raghu Mahajan

Postdoctoral Research Fellow, Physics

### Bio

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#### HONORS AND AWARDS

- Stanford Graduate Fellowship, Stanford University (2012)
- Tyson Medal, University of Cambridge (2012)
- Gates Cambridge Scholarship, Bill and Melinda Gates Foundation (2011)
- Joel Matthew Orloff Award for Scholarship, Massachusetts Institute of Technology (2011)
- Aditya Birla Scholarship, Aditya Birla Group (2006)

#### PROFESSIONAL EDUCATION

- Doctor of Philosophy, Stanford University , PHYS-PHD (2017)
- SB, Massachusetts Institute of Technology , Physics and Mathematics (2011)
- MAST, University of Cambridge , Theoretical Physics (2012)

#### STANFORD ADVISORS

- Sean Hartnoll, Postdoctoral Faculty Sponsor

#### LINKS

- My Stanford Page: <http://web.stanford.edu/~rm89/>

### Research & Scholarship

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#### CURRENT RESEARCH AND SCHOLARLY INTERESTS

My research interests are wide-ranging:

- 1) In the context of gravity, how does spacetime emerge from its dual quantum system? How does the dual quantum system encode the answers to questions that involve local physics in semi-classical gravity? How do you avoid the "firewall" paradox in the context of black-hole evaporation?
- 2) How do you calculate electrical and heat currents in strongly-coupled many-body systems? How do you explain the linear-in-temperature resistivity in high-temperature cuprates?
- 3) Use tensor network methods to study electrical and heat transport and also the real-time dynamics of systems out of thermal equilibrium.

## Publications

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### PUBLICATIONS

- **Matrix ensembles with global symmetries and 't Hooft anomalies from 2d gauge theory** *JOURNAL OF HIGH ENERGY PHYSICS*  
Kapec, D., Mahajan, R., Stanford, D.  
2020
- **Late-time structure of the Bunch-Davies FRW wavefunction** *JOURNAL OF HIGH ENERGY PHYSICS*  
Konstantinidis, G., Mahajan, R., Shaghoulian, E.  
2016
- **Transport in Chern-Simons-matter theories** *JOURNAL OF HIGH ENERGY PHYSICS*  
Gur-Ari, G., Hartnoll, S., Mahajan, R.  
2016
- **Connecting entanglement in time and space: Improving the folding algorithm** *PHYSICAL REVIEW A*  
Hastings, M. B., Mahajan, R.  
2015; 91 (3)
- **Holographic mutual information and distinguishability of Wilson loop and defect operators** *JOURNAL OF HIGH ENERGY PHYSICS*  
Hartnoll, S. A., Mahajan, R.  
2015
- **Chern-Simons-Ghost theories and De Sitter space** *JOURNAL OF HIGH ENERGY PHYSICS*  
Anninos, D., Mahajan, R., Radicevic, D., Shaghoulian, E.  
2015
- **Transport near the Ising-nematic quantum critical point of metals in two dimensions** *PHYSICAL REVIEW B*  
Hartnoll, S. A., Mahajan, R., Punk, M., Sachdev, S.  
2014; 89 (15)
- **Quantum critical metals in d=3+1 dimensions** *PHYSICAL REVIEW B*  
Mahajan, R., Ramirez, D. M., Kachru, S., Raghu, S.  
2013; 88 (11)
- **Non-Fermi liquids and the Wiedemann-Franz law** *PHYSICAL REVIEW B*  
Mahajan, R., Barkeshli, M., Hartnoll, S. A.  
2013; 88 (12)