

## Ashvin Vishwanath

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### *Education and Training:*

- MSc. Indian Institute of Technology, Kanpur, (Physics) 1996.
- Ph.D., Physics, Princeton University, 2001.
- Pappalardo Postdoctoral Fellow. MIT (2001-2004)

### *Employment:*

- University of California, Berkeley:  
Assistant Professor (2004-2008), Associate Professor (2008-2012), Professor (2012 - present).

### *Honors and Awards:*

- Guggenheim Fellowship (2014)
- APS Fellow (2013).
- Distinguished Visiting Research Chair, Perimeter Institute 2012-2015.
- Simons Fellowship in Theoretical Physics 2012.
- NSF CAREER Award 2007.
- A. P. Sloan Fellowship, 2004.
- Pappalardo Fellowship, MIT 2001. Harvard Junior Fellowship 2001 (declined).
- Elizabeth Procter Fellowship, Princeton 2000.

### *Teaching:*

- Physics 141A: Solid State Physics.
- Phy 250 Special Topics: '*Demystifying Quantum Field Theory*'
- Phy211, 212: Equilibrium and non-Equilibrium Statistical Physics.
- Phy 216 Special Topics in Quantum Many Body Theory.

### *Supervision:*

- **PhD Students:**  
*Itamar Kimchi, Haruki Watanabe, Yasaman Bahri, Phillip Dumitrescu.*
- **Postdocs (including joint):**  
*Drew Potter, Sid Parameswaran, YuanMing Liu, Xie Chen, HongChen Jiang.*
- **Former PhD Students:**  
*Fa Wang (Pappalardo Fellow, MIT), Yi Zhang (Stanford), Pavan Hosur (Stanford)*
- **Former Postdocs (including joint):**  
*Tarun Grover (KITP), Pouyan Ghaemi (Assistant Prof., CUNY), Shinsei Ryu (Assistant Prof., UIUC), Ari Turner (Assistant Prof., Johns Hopkins), Ying Ran (Assistant Prof., Boston College), Daniel Podolsky (Assistant Prof., Technion), Benedikt Binz (U. of Cologne), Arun Paramekanti (Associate Prof., U. Toronto).*

### *Service:*

- Contributor to online Journal Club for Condensed Matter Physics.
- Co-organizer Aspen Workshop: "Gauge Theories and Fractionalization in Quantum Matter" Summer 2005.
- Co-organizer for Boulder Summer School 2008.
- Co-organizer for KITP program 'Quantum Spin Liquids', Fall 2012.

### *Publications and Invited Talks:*

~77 publications in refereed journals (100 on the arXiv).

~120 invited talks

### *Funding:*

DOE, NSF, ARO, AFOSR, Templeton Foundation.

*Selected publications:*

Topological States:

1. Lukasz Fidkowski, Xie Chen, and Ashvin Vishwanath, *Non-Abelian Topological Order on the Surface of a 3D Topological Superconductor from an Exactly Solved Model*, Phys. Rev. X 3, 041016 (2013).
2. A Vishwanath, T Senthil, *Physics of Three-Dimensional Bosonic Topological Insulators: Surface-Deconfined Criticality and Quantized Magnetoelectric Effect*, Physical Review X, (2013).
3. Yuan-Ming Lu, Ashvin Vishwanath, *Theory and classification of interacting 'integer' topological phases in two dimensions: A Chern-Simons approach*, Phys. Rev. B 86, 125119 (2012).
4. X. Wan, Ari M. Turner, Ashvin Vishwanath, and Sergey Y. Savrasov, *Topological semimetal and Fermi-arc surface states in the electronic structure of pyrochlore iridates* Phys. Rev. B 83, 205101 (2011).
5. Ying Ran, Yi Zhang, and Ashvin Vishwanath, *Topological defects in a Topological Insulator*, Nature Physics 5, 289 (2009).
6. SA Parameswaran, AM Turner, DP Arovas, A Vishwanath, *Topological order and absence of band insulators at integer filling in non-symmorphic crystals*, Nature Physics 9 (5), 299-303 (2013).

Superconductivity:

7. Fa Wang, Hui Zhai, Ying Ran, Ashvin Vishwanath, and D. H. Lee, *Functional Renormalization-Group Study of the Pairing Symmetry and Pairing Mechanism of the FeAs-Based High-Temperature Superconductor*, Phys. Rev. Lett. 102, 047005 (2009).
8. Daniel Podolsky, Srinivas Raghu, and Ashvin Vishwanath, *Nernst Effect and Diamagnetism in Phase Fluctuating Superconductors* Phys. Rev. Lett. 99, 117004 (2007).

Magnetism:

9. Ying Ran, Fa Wang, Hui Zhai, Ashvin Vishwanath, and D.H. Lee, *Nodal spin density wave and band topology of the FeAs-based materials*, Phys. Rev. B 79, 014505 (2009)
10. B. Binz, A. Vishwanath, and V. Aji. *Theory of the helical spin crystal: a candidate for the partially ordered state of MnSi*. Phys. Rev. Lett. 97, 207202 (2006).
11. F. Wang and A. Vishwanath. *Spin-liquid states on the triangular and Kagome lattices: a projective-symmetry-group analysis of Schwinger boson states*. Phys. Rev. B 74, 174423 (2006).

Quantum Criticality:

12. T. Senthil, Ashvin Vishwanath, L. Balents, S. Sachdev, M. P. A. Fisher, *Deconfined Quantum Critical Points*. Science, 303, 1490 (2004).
13. O. I. Motrunich and A. Vishwanath, *Emergent photons and transitions in the O(3) sigma model with hedgehog suppression*, Phys. Rev. B 70, 075104 (2004).
14. Tarun Grover, D. N. Sheng, Ashvin Vishwanath, *Emergent Space-time Supersymmetry at the Boundary of a Topological Phase*, Science 344: 280-283 (2014).

Entanglement:

15. Yi Zhang, Tarun Grover, Ari Turner, Masaki Oshikawa, and Ashvin Vishwanath, *Quasiparticle statistics and braiding from ground-state entanglement*, Phys. Rev. B 85, 235151 (2012).