

Massachusetts Institute of Technology  
Department of Physics

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Condensed Matter Theory Seminar

"Minimalist approach to the classification of symmetry protected topological phases"

**Zhaoxi Xiong**, Harvard University

**Abstract:** A number of proposals with differing predictions (e.g. Borel group cohomology, oriented cobordism, group supercohomology, spin cobordism, etc.) have been made for the classification of symmetry protected topological (SPT) phases. Here we treat various proposals on an equal footing and present rigorous, general results that are independent of which proposal is correct. We do so by formulating a minimalist Generalized Cohomology Hypothesis, which is satisfied by existing proposals and captures essential aspects of SPT classification. From this Hypothesis alone, formulas relating classifications in different dimensions and/or protected by different symmetry groups are derived. Our formalism is expected to work for fermionic as well as bosonic phases, Floquet as well as stationary phases, and spatial as well as on-site symmetries.

Reference: arXiv:1701.00004

**12:00pm**  
**Tuesday, February 21, 2017**  
**Duboc Room (4-331)**

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Host: Liang Fu