Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Geometric stability of the many-body localized phase in two and higher dimensions ANUSHYA CHANDRAN, Perimeter Institute, ARIJEET PAL, Oxford University, CHRIS LAUMANN, University of Washington, ANTONELLO SCARDICCHIO, Abdus Salam ICTP — Isolated disordered quantum systems need not equilibrate and be described by statistical mechanics; this is the phenomenon of many-body localization (MBL). In higher dimensions, the existence of MBL is a delicate question due to the possibility of inclusions of lower dimensional "thermal" regions. In this talk, I will argue that MBL is stable in higher dimensions by analyzing the geometry of a MBL insulator coupled to a thermal edge and develop a phenomenology of such systems.

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Date submitted: 06 Nov 2015 Electronic form version 1.4