Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

**How universal is the entanglement spectrum?** ANUSHYA CHANDRAN, Perimeter Institute, VEDIKA KHEMANI, SHIVAJI SONDHI, Princeton University — It is now commonly believed that the ground state entanglement spectrum (ES) exhibits universal features characteristic of a given phase. In this letter, we show that this belief is false in general. Most significantly, we show that the entanglement Hamiltonian can undergo quantum phase transitions in which its ground state and low energy spectrum exhibit singular changes, even when the physical system remains in the same phase. For broken symmetry problems, this implies that the ES and the Renyi entropies can mislead entirely, while for quantum Hall systems the ES has much less universal content than assumed to date.

Anushya Chandran
Perimeter Institute

Date submitted: 15 Nov 2013 Electronic form version 1.4