Shiroman Prakash
Dayalbagh Educational Institute, Agra, India

Towards Non-Supersymmetric Holography:
Anomalous Dimensions of Higher Spin Currents in Chern-Simons Theories with Matter

Chern-Simons theories with matter provide a rich class of non-supersymmetric conformal field theories which can be studied in the large N limit. They exhibit a bosonization duality that is perhaps the only known example of a testable non-supersymmetric strong/weak coupling duality in quantum field theory. Perhaps more interestingly, they also provide natural candidates for holographic duals of simple, non-supersymmetric theories of gravity -- for instance, it seems natural to conjecture that $SO(N) \times O(N)$ Chern-Simons theory coupled to Majorana fermions transforming in a bi-fundamental representation may be dual to pure Einstein gravity with a small negative cosmological constant. In this talk, I will motivate these conjectures, review prior developments in this field and describe some exact $1/N$ calculations of anomalous dimensions of higher-spin primary operators.

Tuesday, May 3, 2016
12:00pm
438 Physical Sciences Building