## APCTP SEMINAR

# Semiclassical 3d gravity as an average of large-c CFTs

## Jeevan Namburi Chandra

Cornell University

May 27th (Fri.) 11:00 Online via ZOOM

Conformal bootstrap constrains the spectrum and OPE coefficients of 2d CFTs to have universal asymptotics. For holographic CFTs, which have a large central charge and sparse low energy spectrum, these asymptotics have an extended regime of validity. In the talk, I shall define an ensemble of large-c CFT data obtained by averaging over OPE coefficients subject to bootstrap constraints. On the gravity side, I shall describe the computation of the on-shell gravitational action for a class of wormhole geometries, which solve Einstein's equations, and show that the result in each case matches with the prediction from the CFT ensemble. These results motivate the conjecture that semiclassical 3d gravity is an average over an ensemble of large-c CFTs. In this context, I shall also describe how certain non-handlebody geometries can provide a controlled, semiclassical realisation of the mechanism proposed by Coleman, Giddings and Strominger for random bulk couplings.

### **■ ZOOM Webinar**

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#### **■** Contact information

- Host: Chen-Te Ma (<u>yefgst@gmail.com</u>)
- Office: Research Support Team (<u>ra@apctp.org</u>)

