



Canadian Association  
of Physicists

Association canadienne  
des physiciens et physiciennes

Contribution ID: 3422

Type: **Invited Speaker / Conférencier(ère) invité(e)**

## **WITHDRAWN (I) Multi-orbital SYK models of non-Fermi liquids**

*Monday 6 June 2022 13:15 (30 minutes)*

We propose and study a multi-orbital lattice extension of the Sachdev-Ye-Kitaev model of a non-Fermi liquid. Using numerical calculations in the large- $N$  limit, we discuss the phase diagram, thermodynamics, and spectral properties of this model which features a first-order thermal transition into a nematic insulator and a continuous thermal transition into nematic metal phase, arising from orbital polarization of an isotropic strange metal. We explore the transport properties of this model, including its resistive anisotropy and elastoresistivity, across the phase diagram. Our work offers a useful perspective on nematic phases, phase transitions, and transport in a correlated multi-orbital system.

**Author:** PARAMEKANTI, Arun (University of Toronto)

**Presenter:** PARAMEKANTI, Arun (University of Toronto)

**Session Classification:** M2-8 Quantum and Strongly Interacting Electron Systems (DCMMP) | Systèmes quantiques d'électrons interagissant fortement (DPMCM)

**Track Classification:** Technical Sessions / Sessions techniques: Condensed Matter and Materials Physics / Physique de la matière condensée et matériaux (DCMMP-DPMCM)