



INTERNATIONAL  
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THEORETICAL  
SCIENCES

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

## **ICTS Ph.D. Thesis Defense Seminar**

**Title** : Unconventional Phases and Phase Transitions in Frustrated Magnets

**Speaker** : Animesh Nanda (ICTS-TIFR)

**Date** : Tuesday, 20<sup>th</sup> June 2023

**Time** : 11:00 AM (IST)

**Abstract** : Spin-orbit coupled magnets on the honeycomb lattice lead to an interplay between the competing interactions and quantum fluctuations rendering a quantum spin liquid phase. Although the relevant material shows a co-linear magnetic order at a very low temperature, experiments suggest this magnetic order is fragile and proximate to a spin liquid phase.

In this talk, we will discuss phases and phase transitions between such magnetic orders and the quantum spin liquid in a fine-tuned limit. Specifically, we will focus on the anisotropic limit (toric code) of the Heisenberg-Kitaev-Gamma model to reveal the nature of the phase transitions between gapped Z<sub>2</sub> quantum spin liquid and various co-linear magnetic orders and paramagnetic phases, both in the ferromagnetic and anti-ferromagnetic limit of the Kitaev model.

References: PHYSICAL REVIEW B 102, 235124 (2020)  
PHYSICAL REVIEW B 104, 195115 (2021)

**Venue** : Online

Zoom link: <https://icts-res-in.zoom.us/j/81230287024?pwd=T2VNNEtHUjFKWkIwNUFlcHRHdUFLUT09>

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