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S E M I N A R

Deep Learning Topology

Prof Vishnu Jejjala

University of the Witwatersrand

Date:
Tuesday, 27 Feb 2024

Time:
13h15-14h15 SAST

Venue:
- P213, Physics Building, East Campus, WITS
- Online

ABSTRACT

Topology refers to the properties of a space that remain unchanged under continuous deformations such as bending or twisting. Often, topology on its own is sufficient to characterise the essential physics of a system and to organise large data sets. As machine learning supplies a modern tool for investigating Big Data, we apply this technology to explore aspects of quantum field theory connected to topology. Two case studies involve analysing correlations among knot invariants, which can be defined in terms of some of the simplest quantum field theories, and studying Calabi-Yau manifolds, which enable string theory constructions of the Standard Model of particle physics.

WHO SHOULD ATTEND?

This talk is intended to be accessible to honors and postgraduate students, however, all are welcome. Familiarity with topology, quantum field theory, string theory, or machine learning is NOT assumed.

ZOOM LINK: https://wits-za.zoom.us/j/4535383527

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