ICTS | INTERNATIONAL CENTRE for THEORETICAL SCIENCES

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS String Seminar (HYBRID)

Title : Aspects of higher dimensional quantum Hall effect: Effective actions and entanglement entropy

Speaker : Dimitra Karabali (City University of New York)

Date : Wednesday, 17th January 2024

Time : 03:00 PM (IST)

Abstract : The generalization of the quantum Hall effect to higher dimensions is mathematically and theoretically interesting, but has also become experimentally viable using the idea of synthetic dimensions.

I will present the formulation of higher dimensional QHE on complex projective spaces and derive the effective actions describing the edge/bulk dynamics and the responses to changes in the external gauge and gravitational fields (related to the Hall conductivity, Hall viscosity, etc). I will also discuss the calculation of the entanglement entropy for such systems. In the case of the lowest Landau level, a semiclassical analysis shows that the entanglement entropy is proportional to the phase-space area of the entangling surface with a universal overall constant, which is the same for any dimension and for any background magnetic field.

Venue : **Offline:** Madhava Lecture Hall (ICTS)

Online: Please click on the below link to join the seminar

https://icts-res-in.zoom.us/j/88092766911?pwd=R3ZrVk9yeW96ZmQ4ZG9KRzVhenRKZz09

Meeting ID: 880 9276 6911

Passcode: 232322