

GRADUATE STUDENT SEMINAR

Guest Speaker: Hari Rau-Murthy
University of Notre Dame

Date: Monday, June 14, 2021

Time: 4:00 PM

Location: Zoom

Zoom URL: notredame.zoom.us/j/95815357423



Lecture Title:

The matrix exponential, the Bismut Chern character, and the character of a representation

Abstract

The matrix exponential can be used to solve the differential equation $\frac{d\gamma}{dt} = A(t)\gamma(t)$. We will discuss a cool trick involving this matrix exponential. This trick will be used to define the Bismut Chern character, which is the trace of a certain matrix exponential associated to a loop, $\gamma(t)$, in a manifold. The Bismut Chern character has striking connections to the group theoretic character of a representation, which is trace of a matrix that represents an element, g , of a group. The loop $\gamma(t)$ will end up corresponding to the conjugacy class of g . Thus we relate a differential geometric construction to an algebraic construction.