



## Theoretical Statistics and Mathematics Unit

### Seminar

Date: September 29, 2016

Time: 04:15 PM

Venue: L-Infinity, Stat-Math Unit (5th Floor, A.N. Kolmogorov Bhavan)

T. V. H Prathamesh  
Institute of Mathematical Sciences  
Chennai

### Set Theory, Racks and Legendrian and Transverse Knots

#### Abstract

Quandles are non-associative algebraic structures which give a complete invariant of knots upto mirror isotopy. In this talk, I will discuss the joint work with D. Kulkarni, in which we generalize the notion of quandles in classical knot theory to understand classification of Legendrian and transverse knots (links) in  $R^3$  (with standard contact structure) upto Legendrian and transverse isotopies respectively. In particular, we associate racks to Legendrian knots which we call as Legendrian racks. We show that the Legendrian rack gives a complete invariant for Legendrian knots. Similar result holds for transverse knots. This paper is the first part of the project of formalizing Legendrian and transverse knot theory in first order logic.

All are cordially invited