

SCMS Seminar



STABLE HOMOTOPY, DIFFERENTIAL STRUCTURES AND THE Kervaire INVARIANT PROBLEM

Speaker: Guozhen Wang
Shanghai Center for Mathematical Sciences

Time: 9:20-9:50, Tuesday, Apr. 17th, 2018

Venue: Room 2201, East Guanghua Tower (Main), Fudan University

Abstract:

The classification of smooth manifolds with homotopy type of a sphere is a long standing problem beginning with Poincaré. For dimensions at least 5, Kervaire and Milnor reduced the problem into computations in stable homotopy theory: the stable homotopy groups of spheres and the determination of their Kervaire invariants. In this talk, I will show our new results in computations of stable homotopy theory, and ongoing projects towards understanding the final case of the Kervaire invariant one problem, as well as the applications of our computations in classifications of homotopy spheres, such as the uniqueness of the differential structure on the 61-sphere, and the number of differential structures on spheres up to dimension 70.