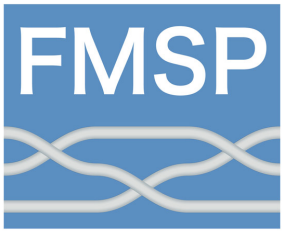

FMSP Lectures

Andrei Pajitnov

(Univ. de Nantes)

Real-valued and circle-valued Morse theory: an introduction

June 6 (Thursday) 16:00 ~ 17:30, Room 056

Abstract:

Classical Morse theory relates the number of critical points of a Morse function f on a manifold M to the topology of M. The main technical ingredient of this theory is a chain complex generated by the critical points of the function. In 1981 S.P. Novikov generalized this theory to the case of circle-valued Morse functions. In this talk we describe the construction of both chain complexes, based on the idea of E. Witten (1982), which allows, in particular, to compute the boundary operators in the Morse complex from the count of flow lines of the gradient of f. We discuss geometric applications of these constructions.