

Oberseminar Topologie: 24.05.33

Georgios Raptis, Universität Regensburg

Title: Simplicial volume of (aspherical) manifolds, bounded cohomology, and the Euler characteristic

Abstract: Bounded cohomology is a variant of singular (and group) cohomology with deep connections with differential geometry and group theory. I will review the definition and basic properties of bounded cohomology and sketch some approaches to two well-known theorems about bounded cohomology: Gromov's Mapping Theorem and the Vanishing/Covering Theorems of Gromov and Ivanov. I will also review the properties of the simplicial volume, a closely related homotopy invariant of closed oriented manifolds, and examine these from the viewpoint of the cobordism category. Then I will discuss an intriguing open question of Gromov about the vanishing of the Euler characteristic of aspherical manifolds with vanishing simplicial volume and present some recent partial results in this direction.