Speakers: Stefan Friedl and Fabian Hennecke

Title: Classical and L^2-torsion of knots and 3-manifolds

Monday, Tuesday, Thursday, Friday (March 19, 20, 22, 23)
10:30-11:30 Lecture
11:30-12:00 Coffee break
12:00-13:00 Lecture

We will start with the definition of the Reidemeister torsion of a knot (which is closely related to the Alexander polynomial) and more generally of a 3-manifold. We will discuss some of the topological information contained in the Reidemeister torsion, e.g. we will relate it to the genus of a knot and fiberedness. Then we will introduce the L^2-Alexander torsion of knots and 3-manifolds. Guided by our understanding of the classical invariants we will discuss the properties of the L^2-Alexander torsion.

References

[1] V. Turaev, Introduction to combinatorial torsions, Notes taken by Felix Schlenk. Lectures in Mathematics ETH Zrich. Birkhuser Verlag, Basel, 2001.
[2] J. Dubois, S. Friedl, W. Lück, The L^2-Alexander torsion of 3-manifolds. J. Topol. 9 (2016), 889–926.
[3] S. Friedl, W. Lück, The L^2-torsion function and the Thurston norm of 3-manifolds, be published by Commentarii Mathematici Helvetici.
[4] Y. Liu, Degree of L^2-Alexander torsion for 3-manifolds, Invent. Math. 207 (2017), 981–1030.