

Coarse embeddings into Hilbert and Banach spaces, coarse amenability, and expanders

Goulmara Arzhantseva

University of Vienna, Austria

goulmara.arzhantseva@univie.ac.at

Session: 15. Groups and Topology

The concept of coarse embedding was introduced by Gromov in 1993. It plays a crucial role in the study of large-scale geometry of groups and the Novikov higher signature conjecture. Coarse amenability, also known as Guoliang Yus property A, is a weak amenability-type condition that is satisfied by many known metric spaces. It implies the existence of a coarse embedding into a Hilbert space. In this expository talk, we discuss the interplay between infinite expander graphs, coarse amenability, and coarse embeddings. We present several monster constructions, in the setting of metric spaces of bounded geometry, including a recent construction, jointly with Romain Tessera, of relative expander graphs which do not weakly contain any expander.

This research was partially supported by my ERC grant ANALYTIC no. 259527.