

SIMION STOILOW INSTITUTE OF MATHEMATICS OF THE ROMANIAN ACADEMY

Monthly conference:

Stability in the topology of configuration spaces

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IMAR

Wednesday, April 19, 2023, 13:00h

IMAR, *Miron Nicolescu* amphitheater

Abstract: A classical result of McDuff-Segal states that the homology of configuration spaces on non-compact manifolds stabilises as the number of particles goes to infinity. If the underlying manifold is closed, however, it does not stabilise, and I will describe the more complicated patterns that appear in this setting. I will also describe recent extensions of McDuff-Segal's stability result to different kinds of "non-local" configuration spaces. Another kind of stability concerns the fundamental group of a configuration space of a fixed number of particles - for example a surface braid group - and its nilpotent quotients. I will describe an almost-complete solution to this stability question for surface braid groups. This is partially motivated by the search for faithful representations of mapping class groups of surfaces and I will describe several candidates for such representations. Parts of this talk include joint work with F. Cantero, U. Tillmann, J. Darné, A. Soulié, C. Blanchet and A. Shaukat.