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Additivity of higher rho invariants and nonrigidity of topological manifolds

The talk is based on joint work with Shmuel Weinberger and Guoliang Yu. The main result of the talk concerns the additivity of the higher rho invariant. More precisely, we show that the higher rho invariant is a group homomorphism from the structure group of a topological manifold to its analytic structure group. This result is then applied to study non-rigidity of topological manifolds. More precisely, we give a lower bound for the size of reduced structure group of a topological manifold, in terms of the number of torsion elements in its fundamental group.