Improved stable ranges in representation stability

Abstract:

Representation stability is a stability pattern generalizing homological stability to contexts with group actions. In joint work with Thomas Church, Rohit Nagpal, and Jens Reinhold, we give a new approach to proving representation stability results that dramatically improves almost all known stable ranges for sequences of symmetric group representations. In particular, we prove a linear stable range for the cohomology of ordered configuration spaces and a quadratic stable range for the homology of congruence subgroups of general linear groups. Previously, the best known stable ranges were exponential.