Expander graphs and good linear codes

Shuhong Gao

Expander graphs are highly connected sparse finite graphs. They play an important role in several areas of mathematics, including number theory (e.g. sieves for primes in group orbits), representation theory and geometric embeddings, as well as in computer sciences and digital signal processing, including communications network designs, pseudorandom number generators, compressive sensing, algorithm designs, among others. In this talk, we present a survey of expander graphs (including Ramanujan graphs), their connections to good linear codes and recent progress on fast decoding algorithms.