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Title: Local and global statistics for point sequences

Abstract:

We recall some classical results for uniform distribution modulo one, and relate them with their counterparts in the "localized" setting of correlation functions and gap statistics. We discuss the difficulties arising from the localized setting, with a particular emphasis on questions concerning the almost everywhere behavior of parametric sequences. It turns out that in this metric setting one is naturally led to a Diophantine counting problem, which has interesting connections to additive combinatorics and to moment bounds for the Riemann zeta function.