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Triple correlations of dilates squares modulo 1

Twenty years ago, Rudnick-Sarnak-Zaharescu made a deep conjecture about the gap distribution of αn^2 modulo 1. They posited that this distribution should be poissonian, provided some generic conditions on the diophantine approximation of the dilate α were satisfied. In this talk I will give a summary of the previous work around this conjecture, and describe a recent result which extends the threshold for the triple correlations beyond the trivial range. This is joint work with Niclas Technau.