The quantum chaos conjecture and generalized continued fractions

Lev Pustyl'nikov

The proof of the quantum chaos conjecture for a broad class of quantum systems, including the "kicked totator" model as a special case, is given. The distribution of distances between adjacent energy levels is close to the Poisson distribution and differs from it by a third order term of smallness. The proof essentially uses results on distribution of distances between adjacent fractional parts of polynomial values. The estimate of the remainder term is based on the new theory of generalized continued fractions for vectors.