

Low-lying zeros of quadratic Dirichlet L -functions: the transition

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I will discuss recent joint work with James Parks and Anders Södergren. Looking at the one-level density of low-lying zeros of quadratic Dirichlet L -functions, Katz and Sarnak predicted a sharp transition in the main terms when the support of the Fourier transform of the implied test functions reaches the point 1. By estimating this quantity up to a power-saving error term, we show that such a transition is also present in lower-order terms. In particular this answers a question of Rudnick coming from the function field analogue. We also show that this transition is also present in the Ratios Conjecture's prediction.

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