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The distribution of values of cubic L -functions at $s = 1$

We investigate the distribution of values of cubic Dirichlet L -functions at $s = 1$. Following ideas of Granville and Soundararajan, and Dahl and Lamzouri for quadratic L -functions, we model values of $L(1, \chi)$ with the distribution of random Euler products $L(1, \mathbb{X})$ for certain family of random variables $\mathbb{X}(p)$ attached to each prime. We obtain a description of the proportion of $|L(1, \chi)|$ that are larger or that are smaller than a given bound, and yield more light into the Littlewood bounds. Unlike the quadratic case, there is a clear asymmetry between lower and upper bounds for the cubic case.

This is joint work with Pranendu Darbar, Chantal David, and Allysa Lumley.