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Djordje Milićević* (dmilicevic@brynmawr.edu), Bryn Mawr College, Department of Mathematics, 101 North Merion Avenue, Bryn Mawr, PA 19010, and **Valentin Blomer, Étienne Fouvry, Emmanuel Kowalski, Philippe Michel** and **William F. Sawin**. *Analysis and arithmetic in moments of twisted L -functions*.

Central values of L -functions encode essential arithmetic information in contexts ranging from distribution of primes to elliptic curves and arithmetic manifolds. In this talk, I will present asymptotic formulas for moments in families of twisted L -functions with all primitive characters modulo q , with a power saving in q , obtained by a combination of analytic and arithmetic techniques ranging from spectral theory to arithmetic geometry. In addition to providing statistical and intrinsic information about the underlying family of automorphic forms, such asymptotics are an essential ingredient in analytic approaches to questions of arithmetic importance such as upper bounds, nonvanishing, or extreme values, and I will also survey several of our applications. (Received September 17, 2016)