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*The fourth moment of quadratic Dirichlet  $L$ -functions*

In this talk, we will investigate the fourth moment of quadratic Dirichlet  $L$ -functions. Under the generalized Riemann hypothesis, we showed an asymptotic formula for the fourth moment. Unconditionally, we established a precise lower bound. This work is mainly based on the Soundararajan and Young's paper in 2010 on the second moment of quadratic twists of modular  $L$ -functions.