TEMPLE UNIVERSITY

Department of Mathematics

Analysis Seminar

Room 617 Wachman Hall

Monday, September 16 2019, 2:40 p.m.

Non-vanishing of L-functions of Hilbert modular forms in the critical strip

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Abstract: Modular forms are analytic functions defined on the upper half-plane with a specific transformation law under elements of the full modular group $\mathrm{SL}_2(\mathbb{Z})$. In this talk, we give different motivations to the theory and then give an explicit introduction about the main definitions in the theory of modular forms. Interesting series called L-series, constructed using the Fourier coefficients of modular forms have important connections to elliptic curves. We show that, on average, the L-functions of cuspidal Hilbert modular forms (a generalization of classical modular forms) with sufficiently large weight k do not vanish on the line segments $\Im(s) = t_0,\ \Re(s) \in (\frac{k-1}{2}, \frac{k}{2} - \epsilon) \cup (\frac{k}{2} + \epsilon, \frac{k+1}{2})$.