

Speaker: Nina Zubrilina

Title: Root Number Correlation Bias of Fourier Coefficients of Modular Forms

Abstract: In a recent machine learning-based study, He, Lee, Oliver, and Pozdnyakov observed a striking oscillating pattern in the average value of the p -th Frobenius trace of elliptic curves of prescribed rank and conductor in an interval range. Sutherland discovered that this bias extends to Dirichlet coefficients of a much broader class of arithmetic L-functions when split by root number. In my talk, I will discuss this root number correlation bias when the average is taken over all weight k modular newforms. I will point to a source of this phenomenon in this case and compute the correlation function exactly.