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Title: Approximating the Variance of Coefficients for the Characteristic Polynomial of Binary Quantum Graphs

Abstract: Quantum graphs provide a simple model of quantum mechanics in systems with complex geometry. A quantum graph has an associated unitary quantum evolution operator. We study the coefficients of the characteristic polynomial of the quantum evolution operator for the family of binary graphs. The variance of the coefficients can be expressed as a sum over pairs of pseudo orbits, collections of periodic orbits. Expanding this sum diagrammatically, we approximate the variance by evaluating the first two terms in the expansion.