Distributions of the Wigner Reaction Matrix for Microwave Networks Simulating Quantum Graphs with Symplectic Symmetry in the Presence of Absorption

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We report on experimental studies of the distributions of the reflection coefficients, and the imaginary and real parts of Wigner's reaction (K) matrix employing open microwave networks [1] simulating quantum graphs with symplectic symmetry and dissipation. The results are compared to analytical predictions derived for the single-channel scattering case within the framework of Gaussian Symplectic Ensemble (GSE) of the random matrix theory (RMT) [2].

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