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Cross-Section Fluctuations in Chaotic Scattering

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For the theoretical prediction of cross-section fluctuations in chaotic scattering, the cross-section autocorrelation function is needed. That function is not known analytically. Using experimental data and numerical simulations, we show that an analytical approximation to the cross-section autocorrelation function can be obtained with the help of expressions first derived by Davis and Boose. Given the values of the average S-matrix elements and the mean level density of the scattering system, one can then reliably predict cross-section fluctuations.

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