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Numerical investigation on the chaos assisted tunneling for a coupled microwave cavity HOSHIK LEE, Temple University, LOUIS PECORA, DONG HO WU, Naval Research Laboratory — It is known that chaos-assisted dynamical tunneling may occur in nonintegrable (chaotic) systems. Recently we investigate wave chaotic systems to see if the system may promote the chaos-assisted spatial tunneling in addition to the dynamic tunneling. Our previous experiments suggest some enhancement of the spatial tunneling rate in a coupled, wave-chaotic 2D microwave double cavity, indicating that the presence of chaotic modes changes not only the dynamical tunneling rate but also the spatial tunneling rate. To understand the underlying physics we carry out numerical simulations on nonintegrable 2D cavities as well as on integrable 2D cavities. We will present details about the experiments and numerical simulation results.

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