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Dicke effect in a multi-ripple electron waveguide. HOSHIK LEE, LINDA REICHL, The University of Texas at Austin, THE CENTER FOR COMPLEX QUANTUM SYSTEMS TEAM — We compute the electron transmission through a bi-ripple electron waveguide. We numerically observe a resonance splitting, in this *open quantum system*, which is analogous to the Dicke effect in quantum optics. We also plot S- matrix poles in the complex energy plane, and find that two symmetry related poles contribute to the resonance splitting. We find that the symmetric resonant states are easily coupled to the leads, but the anti-symmetric states are not. We show the resonance splitting is due to a indirect interaction between wavefunctions in each cavity using a simple model. We also show that one of S-matrix poles withdraws from the real axis as a ripple is added. It turns out that the width of the resonance for N-ripple waveguide is N times larger than the resonance width of a mono-ripple waveguide. It agrees with the result of the Dicke model.

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