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Two-channel resonant tunneling in the presence of spin-orbit coupling[1] T.V. SHAHBAZYAN, L.S. PETROSYAN, Jackson State University — We study resonant tunneling through a pair of localized states independently coupled to two-dimensional electron gas (2DEG) in the leads. The shape of tunneling conductance is determined by the coherent coupling of localized states via electron continuum in the leads. We show that spin-orbit coupling (Rashba and Dresselhaus) in 2DEG leads to a splitting of the narrow (subtunneling) peak by the amount proportional to spin-orbit coupling constant. The conductance lineshape is highly sensitive to the magnitude and orientation of in-plane magnetic field.

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Tigran Shahbazyan
Jackson State University

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