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Aperiodic Aharonov-Bohm oscillations in coherent transport through a periodic array of quantum dots L.S. PETROSYAN, T.V. SHAHBAZYAN, Jackson State Univ — We study resonant tunneling through a periodic square array of quantum dots sandwiched between modulation-doped quantum wells. If a magnetic field is applied parallel to the quantum dot plane, the tunneling current exhibits a highly complex Aharonov-Bohm oscillation pattern due to interference of multiple pathways traversed by a tunneling electron. Individual pathways associated with conductance beats can be enumerated by sweeping the magnetic field at various tilt angles. Remarkably, Aharonov-Bohm oscillations are aperiodic unless the magnetic field slope relative to quantum dot lattice axes is a rational number.

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