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Electron transport of a driven three-level system in an asymmetric double quantum dot[1] YING-YEN LIAO, DER-SAN CHUU, Department of Electrophysics, National Chiao-Tung University, Hsinchu 300, Taiwan, YUEH-NAN CHEN, National Center for Theoretical Sciences, Tainan 701, Taiwan — Electron tunneling through a three-level system in an asymmetric double quantum dot irradiated by an external field is investigated. For a resonant external field, two symmetric peaks occur in the current spectrum. If the field frequency is detuned, unequal contributions from two channels lead to two asymmetric peaks with population inversion, which can be also observed with the increasing of Rabi frequency. On the other hand, as the ground states in two dots are equal, a suppression of current occurs around the resonant frequency. In contrast, an enhanced behavior is found for the case of unequal ground states.

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