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Tunable Fano resonance in a ferromagnetic diatomic molecular transistor ALI GOKER, Tubitak UEKAE — We investigate electron transport through a diatomic molecule parallelly coupled to ferromagnetic source and drain contacts. We utilize a model Hamiltonian involving a Hubbard term in which the contacts are modeled using recently developed complex source and sink potentials. The zero bias transmission spectrum for a symmetrically coupled system as a function of the Fermi energy acquires a Fano lineshape as the Hubbard interaction is turned on. For large values of U, the Fano lineshape broadens and shifts to higher energy values disappearing eventually. Meanwhile, the Breit-Wigner resonance located at the bonding resonance in the noninteracting limit survives but its position is shifted twice the coupling between the atoms in the molecule in the infinite U limit and its linewidth is reduced to half. We attribute this behaviour to the unavailability of one of the transmission channels.

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