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Transport through an AC-driven impurity: Fano interference and bound states in the continuum SEBASTIAN REYES, DANIEL THUBERG, ENRIQUE MUÑOZ, DANIEL PEREZ, Instituto de Fisica, Pontificia Universidad Catolica de Chile, SEBASTIAN EGGERT, Physics Department and Research Center OPTIMAS, University of Kaiserslautern — Using the Floquet formalism we study transport through an ac-driven impurity in a tight binding chain. The results obtained are exact and valid for all frequencies and barrier amplitudes. At frequencies comparable to the bulk bandwidth we observe a breakdown of the transmission $T = 0$ which is related to the phenomenon of Fano resonances associated to AC-driven bound states in the continuum. We also demonstrate that the location and width of these resonances can be modified by tuning the frequency and amplitude of the driving field. It is shown that at high frequencies there is a close relation between the resonances and the phenomenon of coherent destruction of tunneling. We also discuss a generalization of these results including two spin channels, a local Zeeman splitting and interparticle interactions at the impurity site.

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