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Conductance Fano lineshapes for Kondo impurities on surfaces: A numerical renormalization group description. NANCY SANDLER, LUIS DIAS DA SILVA, SERGIO ULLOA, Department of Physics and Astronomy, Ohio University — Scanning tunneling microscopy (STM) measurements of Kondo impurities on metallic surfaces has been an active field in recent years. For a flat density-of-states (DoS) near the Fermi energy in the host metal, the low-bias STM conductance acquires the characteristic Fano lineshape, with width proportional to the Kondo temperature T_K. In this work, we study how this picture is modified when a *structured* DoS (non-flat) is considered. A variety of physical effects can introduce peak/dips in the DoS, including the presence of a second impurity, hybridization between surface and bulk conduction states, and a magnetic impurity embedded in a molecule. Using numerical renormalization group techniques, we calculate the low-temperature conductance for this system. The zero-bias dip in the Fano conductance is modified by the presence of resonances or anti-resonances in the DoS near E_F. In particular, for DoS with pseudogaps and impurities in the mixed-valence regime, zero-bias Fano-like dips appear *even when no Kondo state has developed*, but governed by energy scales much larger than T_K. We further show that measurements of the scattering phase could be used as an additional probe into the Kondo regime. Supported by NFS-NIRT.

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