Condensed Matter Theory Center Seminar

Wednesday, November 4
11:00 am – 12:30 pm
2205 Toll Physics Building

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"Topological superconductivity in a multichannel Yu-Shiba-Rusinov chain"

Abstract: **Chains of magnetic atoms placed on the surface of an s-wave superconductor with large spin-orbit coupling provide a promising platform for the realization of topological superconducting states characterized by the presence of Majorana zero-energy modes. In a recent work, we study the properties of one-dimensional chains of Yu-Shiba-Rusinov states induced by magnetic impurities using a realistic model for the magnetic atoms that includes the presence of multiple scattering channels. These channels are mixed by spin-orbit coupling and, via the hybridization of the Yu-Shiba-Rusinov states at different sites of the chain, result in a multi–band structure for the chain. We obtain the topological phase diagram for such band structure and show that the inclusion of higher bands can greatly enlarge the phase space for the realization of topological states.**

Host: Will Cole

Web: http://www.physics.umd.edu/cmtc/seminars.html