

Abstract Submitted
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Controlling Interactions between Mn Acceptors in the GaAs (110) Surface¹ DALE KITCHEN, ANTHONY RICHARDELLA, ALI YAZDANI, Department of Physics and Frederick Seitz Materials Research Laboratory, University of Illinois at Urbana-Champaign — Low temperature scanning tunneling microscopy (STM) is used to control the substitution of individual Mn adatoms into Ga sites in the GaAs (110) surface. In a Ga site, a Mn atom gives rise to a strong in-gap level with highly anisotropic character as probed by spatially-resolved STM spectroscopy measurements. Modifications to this in-gap resonance can occur when two Mn acceptors interact. The interaction of Mn acceptors depends upon both orientation as well as spacing, leading to strong bonding/antibonding-like states under certain configurations. Such measurements of interacting pairs of Mn can potentially provide information on their spin orientation.

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