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**Driving Mn into GaAs with an STM: Probing a Mn Acceptor**<sup>1</sup> ANTHONY RICHARDELLA, DALE KITCHEN, ALI YAZDANI, Department of Physics and Frederick Seitz Materials Research Laboratory, University of Illinois at Urbana-Champaign — Using a low temperature scanning tunneling microscope (STM), we can induce an individual Mn adatom to substitute for a Ga atom in the GaAs (110) surface. The Mn atom occupies the Ga site while the Ga atom comes to the surface as a weakly bound adatom. Using STM manipulation the Ga adatom is moved away, leaving a Mn in its substitution position in the (110) surface layer. A Mn atom, in this configuration, gives rise to a strong in-gap level as probed by spatially-resolved STM spectroscopy measurements. The Mn-induced in-gap state has an unusual highly anisotropic spatial structure, which shares some characteristic features with other p-type dopants. The influence of tip-induced band bending on the spectroscopic measurements will be discussed. This talk will provide background for the talk following by Kitchen, *et al.*

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Prefer Oral Session      Department of Physics and Frederick Seitz Materials Research Laboratory  
 Prefer Poster Session      University of Illinois at Urbana-Champaign

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