Abstract Submitted
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Initial stages of Mn deposition on Si(001) studied by STM MICHAEL R KRAUSE, ANDREW STOLLENWERK, CHAFFRA AWO-AFFOUDA, VINCENT P LABELLA, College of Nanoscale Science and Engineering, University at Albany-SUNY — Semiconductor devices which utilize the spin of the electron (spintronic devices) have the potential to achieve higher speeds with lower power consumption than conventional devices. The integration of ferromagnetism into these device structures is needed to couple to electron spin. Diluted magnetic semiconductors (DMS) have been demonstrated as a successful method for integrating ferromagnetism through doping of a semiconductor crystal such as Si with an additional transition metal impurity such as Mn. Therefore the study of Mn deposition onto Si(001) in the submonolayer regime can give detailed insight into the bonding and energetics of Mn with Si. We present results of both clean Si(001) surfaces and submonolayer coverages of Mn on Si(001). The STM images have been taken at room temperature as well as 77 K.

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