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Computational study of local meta-magnetic states in manganese doped silicon nano-crystals BHAGAWAN SAHU, SANJAY BANERJEE, University of Texas at Austin — Using a real-space electronic structure theory with ordinary pseudo-potentials, we show that manganese doped at the center of the nano-crystals (diameters 1-5 nm) and near the surface has local meta-magnetic states which differ from their respective ground states by few tens to hundreds of meV in energy but larger than K_BT at room temperature so they are not switchable easily at room temperature. We discuss origin of such meta-magnetic states and argue about a possible switching between these meta-magnetic states for potential information storage applications

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