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μSR Investigation of Transition Metal Doped $IrTe_2$ MURRAY WILSON, Department of Physics and Astronomy, McMaster University, Hamilton, ON L8S 4M1, Canada, JIAQIANG YAN, DAVID MANDRUS, Department of Materials Science and Engineering, the University of Tennessee, Knoxville, TN 37996, USA, TIMOTHY MUNSIE, TERESA MEDINA, GRAEME LUKE, Department of Physics and Astronomy, McMaster University, Hamilton, ON L8S 4M1, Canada — Materials with strong spin orbit coupling such as $IrTe_2$ frequently exhibit interesting magnetic and electronic properties. In particular, this material exhibits a structural phase transition at 270 K into a charge density wave state, which is supressed when the parent compound is doped with transition metals such as Pd, Fe, Pt, Ni, Mn, Cu, or Co. As this transition is supressed, superconductivity or magnetic order appears at low temperatures, depending on the metal dopant. These low temperature properties are of interest as the high spin-orbit coupling raises the possibility of topological superconducting states or exotic magnetic order. However, despite significant interest in recent years, the relationship between magnetism and superconductivity in this material system has not yet been well established. In this talk, we present an investigation of the properties of transition metal doped $IrTe_2$ by μSR which confirms spin glass behavior for Fe doping and probes the low temperature magnetic states for other transition metal dopants.

Murray Wilson
Department of Physics and Astronomy, McMaster University,
Hamilton, ON L8S 4M1, Canada

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