

Abstract Submitted
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Spin Transport in Epitaxial Graphene on SiC (0001) J. ABEL, A. MATSUBAYASHI, University at Albany, C. DIMITRAKOPOULOS, D.B. FARMER, ALI AFZALI, A. GRILL, C.Y. SUNG, IBM T.J. Watson Research Center, V.P. LABELLA, University at Albany — Long spin lifetimes in graphene make it an ideal candidate for the channel material in future spintronic devices. The long spin lifetimes arise due to the small intrinsic spin orbit coupling and low hyper-fine interaction of the electron spins with the carbon nuclei. Spin lifetimes are measured in epitaxially grown graphene on SiC from IBM. The spin lifetime is measured with non-local Hanle measurements to observe spin precession in the graphene. Spin lifetimes are then extracted by fitting to the solution of the Bloch equation with a diffusion term. A comparison will be presented between an injection and detection contact structure with a bare Co/graphene interface and a Co/HfO₂/graphene interface, where it was found that the HfO₂ interface results in an increased spin lifetime. Temperature dependent spin lifetimes and Hall mobilities were measured, and a comparison of the two measurements will also be presented to provide insight into the spin scattering mechanism in epitaxial graphene on SiC.

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