

Abstract Submitted
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Spin transport in epitaxial graphene on SiC (0001) YUCHEN DU, ADAM T. NEAL, MIKE CAPANO, PEIDE YE, Purdue University, Birck Nanotechnology Center — Graphene has been identified as a promising material for future spintronics devices due to its low spin orbit coupling and long spin diffusion lengths, even at room temperature [1-2]. However, any device application requires the use of large-area graphene compatible with wafer-scale manufacturing methods, such as graphene grown epitaxially on SiC. We study spin transport in epitaxial graphene grown on SiC (0001) as a step toward future spintronics devices. A non-local spin valve signal of $200\text{m}\Omega$ is observed at 77K, with a signal of $50\text{m}\Omega$ resolved at 145K. Assuming a contact polarization of 10% [1], the measured signal corresponds to a spin diffusion length of 130nm at $T=77\text{K}$. Hanle effect spin precession measurements are ongoing. [1] Tombros et al. **Nature** 448 571 (2007) [2] Maassen et al. **Nano Lett.** 12, 1498 (2012)

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