

Abstract Submitted
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Optical pure spin current injection in graphene JULIEN RIOUX,
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stanz, Germany — Pure spin current injection by optical methods is investigated
in single-layer and bilayer graphene within the tight-binding model, including bias
and interlayer coupling effects. Interlayer coupling in bilayer graphene has a dis-
tinct qualitative effect on the polarization dependence of the spin current injection.
In combination with interlayer coupling, which induces trigonal warping of the elec-
tronic bands, the bias voltage allows to control the warping at the Fermi surface. The
resulting implications for the spin current injection are presented. Unlike the pre-
viously presented charge current injection [J. Rioux et al., PRB 83, 195406 (2011)],
the effect presented here relies on a single monochromatic beam.

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