

Abstract Submitted
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Impurity Induced Spin-Orbit Coupling in Graphene¹ ANTONIO CASTRO NETO, Boston University, FRANCISCO GUINEA, ICMM, Madrid — We study the effect of impurities in inducing spin-orbit coupling in graphene. We show that the sp³ distortion induced by an impurity can lead to a large increase in the spin-orbit coupling with a value comparable to the one found in diamond and other zinc-blende semiconductors. The spin-flip scattering produced by the impurity leads to spin scattering lengths of the order found in recent experiments. Our results indicate that the spin-orbit coupling can be controlled via the impurity coverage.

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