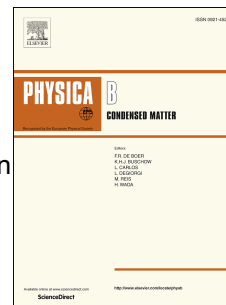


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**The effect of Si impurities on the transport properties and the electron-surface phonon interaction in single layer graphene deposited on polar substrates.**

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**Abstract**

We investigated theoretically the effect of introducing Si impurities in a single layer graphene (1LG) that had been deposited on a polar substrate on the transport properties of the graphene layer. We consider in our analysis the scattering effects due to the surface optical (SO) phonons located at the interface of the 1LG with various polar substrates such as *SiC*, hexagonal *BN*, *SiO<sub>2</sub>* and *HfO<sub>2</sub>*. Our results demonstrate a reduction of SO phonon-limited (SOPL) mobility, and SOPL conductivity as well as an increase of the SOPL resistivity and of the scattering rate in the presence of Si impurities in the 1LG. Further, we studied the effect

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