

Abstract Submitted
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First-principles study of electric and magnetic properties of an F4TCNQ ribbon on graphene HYUNGJU OH, SINISA COH, Univ of California - Berkeley, YOUNG-WOO SON, Korea Institute for Advanced Study, MARVIN COHEN, Univ of California - Berkeley — We present density functional calculations on the electrical and magnetic properties of a ribbon of tetrafluoro-tetracyanoquinodimethan (F4TCNQ) molecules deposited on a graphene sheet. We find that doping the system with electrons results in a spatial variation of the Dirac point energy along the direction perpendicular to the ribbon, which makes a p-n junction configuration in the graphene sheet. In addition, ferromagnetism appears in the ribbon and the ferromagnetic moments can be controlled by the electron doping. This work was supported by NSF Grant No. DMR10-1006184 and the U.S. Department of Energy under Contract No. DE-AC02-05CH11231. Computational resources have been provided by the DOE at Lawrence Berkeley National Laboratory's NERSC facility.

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