

Abstract Submitted  
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**Interedge magnetic coupling in metal-terminated graphene nanoribbons**<sup>1</sup> YAN WANG, CHAO CAO, HAI-PING CHENG, Department of Physics and Quantum Theory Project, University of Florida — Graphene nanoribbons (GNRs) with armchair or zigzag edges, a novel organic material system produced by cutting graphene along two crystallographic directions, have recently attracted considerable attention in spintronics. GNR with zigzag edges is known to be magnetic with two spin-polarized edge states, which are ferromagnetically ordered but antiferromagnetically coupled to each other. Most of the previous studies focus ribbons with zigzag edges and hydrogen terminations. Here we present a first-principles study<sup>2</sup> of zigzag and armchair GNRs terminated with  $3d$  transition-metals and noble metals. Specifically, we investigate the long-range interedge magnetic coupling as a function of the ribbon's width. We also show that the proposed hybrid metal-terminated GN<sup>3</sup>Rs can be excellent candidate for spintronic applications.

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<sup>2</sup>Y. Wang, C. Cao, and H.-P. Cheng, Phys. Rev. B 82, 205429 (2010).

<sup>3</sup>Y. Wang and H.-P. Cheng, submitted.

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