Abstract Submitted
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Magnetic-field effects in graphene nanorings: armchair versus zigzag edge terminations[1] CONSTANTINE YANNOULEAS, IGOR ROMANOVSKY, UZI LANDMAN, School of Physics, Georgia Institute of Technology — Dirac quasiparticles in narrow graphene nanorings exhibit characteristic differences in their behavior depending on the shape (e.g., trigonal vs. hexagonal) and the type of edge terminations (armchair vs. zigzag). The differences are manifested in the tight-binding single-particle spectra as a function of the magnetic field B and in the patterns of the Aharonov-Bohm oscillations. The symmetry of shape leads to the appearance of three-member (triangles) or six-member (hexagons) braid bands.[2] With the exception of the formation of the braid bands, the characteristic differences maintain in the energy spectra of the continuous Dirac-Weyl equation for a circular ring of finite width. These differences will be further analyzed with the help of a relativistic superlattice model.

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[2]I. Romanovsky, C. Yannouleas, and U. Landman, Phys. Rev. B **85**, 165434 (2012)

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