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Theoretical investigations of deformed graphene nanoribbons[1] RICARDO KAGIMURA, MARIO S. C. MAZZONI, HELIO CHACHAM, Universidade Federal de Minas Gerais — Graphene nanoribbons (GNRs) have attracted considerable attention in the last two years. Recent experimental work [Science, 319, 1229 (2008)] has reported semiconducting GNRs with width of a few nanometers and suitable band gap widths for electronic applications. One desirable aim in the investigation of GNRs is to control their electronic properties. It has been proposed, for instance, that chemical edge modifications or external strain can modify their electronic properties. In this work, we report density functional calculations for GNRs with structural and topological deformations. In particular, we investigate modifications of the electronic structure as a function of those defornations. Finally, we study the effect of a transverse electric field in those ribbons.

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