

Abstract Submitted
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Black phosphorus edges: a polarized Raman study¹ H RIBEIRO, Mackgraphe-Mackenzie University, C VILLEGAS, IFT-UNESP, D BAHAMON, Mackgraphe-Mackenzie University, A CASTRO NETO, CA2DM and GRC, National University of Singapore, E DE SOUZA, Mackgraphe-Mackenzie University, A ROCHA, IFT-UNESP, M PIMENTA, Departamento de Física, UFMG, C DE MATOS, Mackgraphe-Mackenzie University — Black phosphorus (BP) has been recently exfoliated down to few-layer thicknesses revealing numerous interesting features such as a tunable direct bandgap. Ever since, demonstrations of BP electronic devices have bloomed, as well as studies of the electric, optical, mechanical and thermal properties of its bulk and few-layer forms. However, the edges of BP crystals have, so far, been poorly characterized, even though the terminations of layered crystals are known to possess a range of interesting properties. In this work, the edges of exfoliated BP flakes are characterized by polarized confocal Raman spectroscopy. We will present experimental Raman spectra at zigzag and armchair edges, as well as density functional theory calculations that explain the peculiarities of the experimental data.

¹FAPESP, INCT/Nanocarbono, Fapemig, CNPq, MackPesquisa, Grid-Unesp, CENAPAD-SP, and NRF

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