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Decay patterns of edge states at reconstructed armchair graphene edges[1] CHANGWON PARK, ORNL, USA, JISOON IHM, Seoul National Univ., Korea, GUNN KIM, Sejong Univ., Korea — Density functional theory calculations are used to investigate the electronic structures of localized states at reconstructed armchair graphene edges. We consider graphene nanoribbons with two different edge types and obtain the energy band structures and charge densities of the edge states. By examining the imaginary part of the wave vector in the forbidden energy region, we reveal the decay behavior of the wave functions in graphene. The complex band structures of graphene in the armchair and zigzag directions are presented in the first-principles framework.

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