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Single point defect states in an armchair-graphene nanoribbon[1]
CHI-HSAUN CHIU, C.S. CHU, National Chiao Tung Universty, Taiwan — We investigate in detail the electronic states induced by a single or a few defects in an armchair-graphene nanoribbon (AGNR). A semi-analytical approach is developed for the Lippmann-Schwinger formulation within the tight-binding model. The dependences of the local density of states (LDOS) in the vicinity of the defects on both the defect locations and the nanoribbon widths are explored. In particular, the LDOS characteristics in the gapped or gapless AGNR will be discussed. Our results are compared with exact diagonalization approach. The effects of these point defect states on the transport property of the AGNR will also be presented.

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