VARIATIONAL METHOD FOR THE CALCULATION OF CRITICAL DISTANCE BETWEEN TWO COULOMB CENTERS IN GRAPHENE

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S u m m a r y

The supercritical instability in a system of two identical charged impurities in gapped graphene described in the continuous limit by the two-dimensional Dirac equation has been studied. The case where the charge of each impurity is subcritical, but their sum exceeds the critical value calculated in the version with a single Coulomb center, is considered. Using the developed variational method, the dependence of the critical distance $R_{\rm cr}$ between the impurities on their total charge is calculated. The $R_{\rm cr}$-value is found to grow as the total impurity charge increases and the quasiparticle band gap decreases. The results of calculations are compared with those obtained in earlier researches.