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Attraction-repulsion transition in the interaction of adatoms and vacancies in graphene[1] STEPHAN LEBOHEC, JUSTIN TALBOT, EUGENE MISHCHENKO, University of Utah — The interaction of two resonant impurities in graphene has been predicted to have a long-range character with weaker repulsion when the two adatoms reside on the same sublattice and stronger attraction when they are on the same sublattice. We reveal that a single impurity level is responsible for such attraction. This opens up a possibility of controlling the sign of the impurity interaction via the adjustment of the chemical potential. For many randomly distributed impurities (adatoms or vacancies) this may offer a way to achieve a controlled transition from aggregation to dispersion.

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