Abstract Submitted
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impurity-impurity interaction in graphene nanoribbons JIAN-MING TANG, University of New Hampshire — The high mobility and small spin-orbit interaction makes graphene a promising candidate material for building spin-based quantum devices. Embedded magnetic dopants or magnetized defects due to many-body interaction may act as single spin qubits in these devices. The long decay length for the impurity levels near the Dirac point suggest that the double exchange interaction can compete with the RKKY exchange interaction. The impurity level splitting for two impurities in bulk and in nanoribbons are studied using a tight-binding approach. In the case of nanoribbons, the modification to the interaction due to the presence of edge states will be discussed.

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