Erratum: Magnetism of finite graphene samples: Mean-field theory compared with exact diagonalization and quantum Monte Carlo simulations [Phys. Rev. B 81, 115416 (2010)]

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In our original manuscript, we incorrectly identified the charge gap $\Delta E = E_{N-1} - 2E_N + E_{N+1}$ with the single-particle gap Δ_{sp} determined by quantum Monte Carlo (QMC) simulations. Since the system under study is a particle-hole-symmetric half-filled system, the chemical potential is right in the middle of the charge gap such that the charge gap is in fact *twice* the single-particle gap

$$\Delta E = 2 \Delta_{\text{sp}}.$$

This error affected in particular the middle panel of Fig. 3 of our original manuscript. Here we present a corrected version of this figure, see Fig. 3 below. This correction actually improves the agreement of mean-field theory (MFT) and QMC, in particular for $U \lesssim 2t$, but apart from that changes none of our conclusions.

FIG. 3. Comparison MFT-QMC for a system with periodic boundary conditions and $N = 162$ sites at half filling. QMC error bars are smaller than the size of the symbols. (Middle panel corrected compared to the original version.)