Erratum: Phase diagram of the dissipative quantum particle in a box [Phys. Rev. B **78**, 085439 (2008)]

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We have detected an error of a factor of 2 related to the potential strength g in the equations of motion from the variational calculation. Equation (7) should read:

$$t_{ren}(c_{m+1} + c_{m-1}) + [g(m - m_0)^2 - E_G]c_m = 0.\tag{7}$$

As a result, the effective potential generated by the bath is stronger, changing qualitatively the fitting shown in Fig. 5. This result can be understood as follows: the variational calculation only predicts a quadratic potential, while the numerical calculation suggests that higher order corrections to the effective potential (at least quartic) could be relevant. The right figure is included below, with a revised caption. The correction does not change the main results of the paper, as they rely on a numerical calculation.
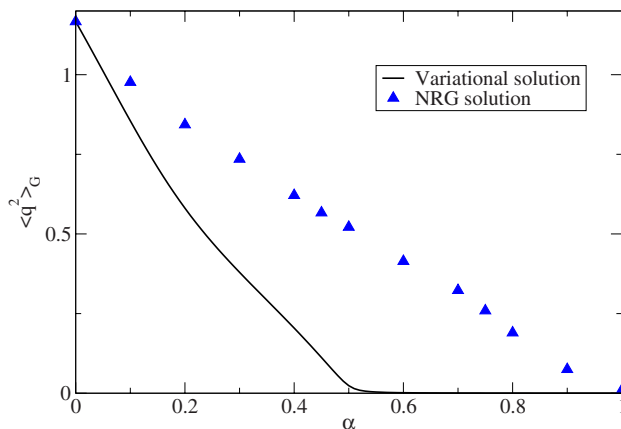

FIG. 5. (Color online) Mean-squared position of the particle as a function of the coupling strength in the delocalized phase of the model, for $M=5$, as predicted by the variational calculation and the NRG. Both approaches show an increasing localization of the particle at the center of the chain as the coupling strength gets larger. This effect arises due to the renormalization of the hopping parameter and the emergence of an effective confining potential. In the variational calculation the localization is stronger, suggesting that higher order corrections to the effective potential are playing an important role in the numerical calculation.