

Erratum: Quantum simulation with gauge fixing: From Ising lattice gauge theory to dynamical flux model [Phys. Rev. Research 7, 013311 (2025)]Junsen Wang , Xiangxiang Sun, and Wei Zheng 

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We comment on the quantum phase diagram of one-dimensional repulsive Fermi Hubbard model in the middle of the right column at page 9, where a small erroneous statement was found by us. Namely, the following two sentences

“For a given commensurate filling and increasing U/t , there is a quantum phase transition from the Luttinger liquid (metallic) phase to the Mott insulator phase of the Berezinskii-Kosterlitz-Thouless type. For half-filling, the transition point is at $U/t = 0$.” should be replaced by

“Away from half-filling, the system is always in the Luttinger liquid (metallic) phase. At half-filling, however, the charge gap is opened for infinitesimal U/t and hence it is in the Mott insulator phase for any nonzero U/t [1].”

All results and conclusions in this work remain valid.

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- [1] F. H. L. Essler, H. Frahm, F. Göhmann, A. Klümper, and V. E. Korepin, *The One-Dimensional Hubbard Model* (Cambridge University Press, Cambridge, 2005).