Abstract Submitted
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Ferromagnetic response of a "high-temperature" quantum antiferromagnet[1] XIN WANG, Univ of Maryland-College Park — We study the antiferromagnetic phase of the ionic Hubbard model at finite temperature using dynamical mean-field theory. We find that the ionic potential plays a dual role in determining the antiferromagnetic order. A small ionic potential (compared to the Hubbard repulsion) increases the super-exchange coupling, thereby implying an increase of the Neel temperature of the system, which should facilitate observation of antiferromagnetic ordering experimentally. On the other hand, for large ionic potential, the antiferromagnetic ordering is killed and the system becomes a charge density wave with electron occupancies alternating between 0 and 2. This novel way of degrading antiferromagnetism leads to spin polarization of the low energy single particle density of states. The dynamic response of the system thus mimics ferromagnetic behavior, although the system is still an antiferromagnet in terms of the static spin order [1].

[1] X. Wang, R. Sensarma, and S. Das Sarma, arXiv:1308.1091

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Xin Wang
Univ of Maryland-College Park

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