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Ferromagnetism and Phase-Separation in Confined Fermionic 1D Systems[1] GEORGIOS KOUTENTAKIS, SIMEON MISTAKIDIS, PETER SCHMELCHER, University of Hamburg — Lieb and Mattis have shown that ferromagnetism is impossible to achieve in the ground state of fermionic systems, our work focusses on identifying stable ferromagnetic correlations emanating in the excited states of 1D ultracold systems of few fermions. The stability of such correlations can be attributed to the Hund exchange interaction inherent in those setups. However, these ferromagnetic correlations are connected to neither the stability of the magnetization nor the phase separation of the spin-components, contrary to the well enstablished framework of the Stoner instability.

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