

Abstract Submitted  
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**Wigner Crystallization in inhomogeneous one dimensional wires**

ERICH MUELLER, Cornell — I present a theory of the crossover between weak and strong interactions in a one dimensional electron gas confined by a power law potential [cond-mat/0410773]. Upon increasing the interaction strength, Friedel oscillations in the density of the noninteracting gas smoothly increase in amplitude, eventually resulting in well-separated electrons. I extract the momentum space wavefunction of the electron at the Fermi surface, which can be measured in experiments on tunneling between parallel wires. The onset of localization leads to a dramatic broadening of the momentum space wavefunction together with pronounced sharpening (in energy) of the tunneling spectrum.

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