

Abstract Submitted
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2D Wigner crystal: metal to insulator transition via self doping SERGEY PANKOV, VLADIMIR DOBROSAVLJEVIC, NHMFL-FSU — We consider a scenario of metal to insulator transition in the 2D Wigner crystal. The Wigner crystal is modeled as a two band (bands represent the site and interstitial orbitals) Hubbard model. It is found that the transition is unstable to the electron self doping, resembling conceptually the liquid-solid transition in Helium III. The self doping is shown to stabilize the metallic phase, pushing the transition to lower electron densities. The implication of the self doping to the compressibility, phase separation and transport properties of the Wigner crystal is discussed.

Sergey Pankov
NHMFL-FSU

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