Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Super-Crystalline CDW Phase in Organic Conductor $(Per)_2Pt(mnt)_2$[1] SI WU, ANDREI LEBED, Dept. of Physics, Univ. of Arizona — We suggest a model [1,2], where phase transitions between the Peierls and Super-Crystalline [or soliton wall superlattice (SWS)] charge-density-wave (CDW) phases occur in a magnetic field. The model accounts for peculiarities of an electron spectrum in a quasi-one-dimensional (Q1D) conductor $(Per)_2Pt\ (mnt)_2$. In particular, we show that the Pauli spin- splitting effects improve the nesting properties of a realistic Q1D electron spectrum, and, therefore, a high resistance Peierls CDW phase is stabilized in high magnetic fields. In low and very high magnetic fields, a periodic SWS (or Super- Crystalline) phase is found to be a ground state. We discuss [3] possible experimental investigations of the theoretically predicted phase transitions in $(Per)_2Pt(mnt)_2$ to discover a unique SWS phase.

[1] A.G. Lebed and Si Wu, Phys. Rev. Lett. 99, 026402 (2007).
[2] A.G. Lebed and Si Wu, JETP Lett. 86, 135 (2007).
[3] Si Wu and A.G. Lebed, Phys. Rev. B, submitted (2008).

[1]This work is supported by NSF grant DMR-0705986.

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Date submitted: 30 Nov 2007 Electronic form version 1.4