Super-Crystalline CDW Phase in Organic Conductor (Per)$_2$Pt(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)$_2$Pt (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)$_2$Pt(mnt)$_2$ to discover a unique SWS phase.

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\[2\] A.G. Lebed and Si Wu, JETP Lett. 86, 135 (2007).