Abstract Submitted
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Slip motion of a dimple lattice associated with Wigner solid on liquid He[1] K. KONO, RIKEN CEMS, D. G. REES, B.-C. LEE, S.-S. YEH, Institute of Physics, NCTU, Taiwan, N. R. BEYSENGULOV, D. A. TAYURSKII, Institute of Physics, KFU, Russia, J.-J. LIN, Institute of Physics, NCTU, Taiwan, F. I. B. WILLIAMS, Retired — 2D electrons on a surface of liquid helium undergo a phase transition to the Wigner solid (WS). When the WS forms, an electron starts to localize at each lattice site. The force exerted by electrons to the surface becomes inhomogeneous, and resulting in a dimple lattice commensurate with a WS lattice. A sliding phenomenon of the Wigner solid was discovered, which was ascribed to a decoupling of the WS from the dimple lattice [1]. The sliding threshold was interpreted by escape of the WS from a tilted washboard potential. Later, however, the Bragg-Cherenkov mechanism was proposed, which causes an infinite growth of the dimple lattice when the WS speed approaches the phase velocity of a surface capillary wave [2]. Since then, the determination mechanism of sliding threshold has been a long standing mystery. The recent observation of stick-slip motion of the WS gives an insight for this problem. [1] K. Shirahama and K. Kono, Phys. Rev. Lett **74**, 5 (1995). [2] M. I. Dykman and Yuri G. Rubo, Phys. Rev. Lett **75**, 25 (1997). [3] D. G. Rees, N. R. Beysengulov, J.-J. Lin and K. Kono, Phys. Rev. Lett. **116**, 206801 (2016).

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