Universität Konstanz

SFB 767 Sonderseminar

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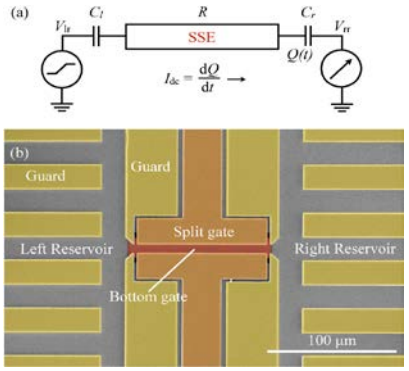
Slip-stick motion of a Wigner crystal on liquid helium



I present time-resolved transport measurements of a Wigner solid (WS) on the surface of liquid Helium confined in a micron-scale channel. At rest, the WS is `dressed' by a cloud of quantised capillary waves (ripplons). Under a driving force, we find that repeated WS-ripplon decoupling leads to stick-slip current oscillations, the frequency of which can be tuned by adjusting the temperature, pressing electric field, or electron density [1]. The WS on liquid He is a promising system for the study of polaron-like decoupling dynamics.

[1] David G. Rees, Niyaz R. Beysengulov, Juhn-Jong Lin, and Kimitoshi Kono, *Stick-Slip Motion of the Wigner Solid on Liquid Helium* , Phys. Rev. Lett. **116**, 206801 (2016)

Freitag 16. December 2016 um 10:00 h in P 602

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