
O 3: Invited Talk Klaus Ensslin

Time: Monday 10:15–11:00

Location: HE 101

Invited Talk

O 3.1 Mon 10:15 HE 101

Graphene Single Electron Transistors — CHRISTOPH STAMPFER, FRANCOISE MOLITOR, JOHANNES GÜTTINGER, THOMAS IHN, and •KLAUS ENSSLIN — Solid State Physics Lab, ETH Zurich, Switzerland

Graphene flakes are patterned into nanostructures using electron beam lithography and dry etching. A mesoscopic Hall bar is investigated by

low-temperature magnetotransport experiments. The potential inside the Hall bar is tuned by graphene side gates. We demonstrate that the carrier density can be tuned over typical lateral distances of 90 nm. This way a tunable graphene single electron transistor is realized. Clear conductance resonances and Coulomb diamonds are resolved at a temperature of $T=2$ K. We present data for several graphene single electron transistors and discuss the tunability of the tunnel barriers as well as the overall electronic configuration of the device.