

Strongly Correlated Transport

Zhongling Ji*

*Department of Physics and Astronomy
Stony Brook University*

(Dated: February 13, 2013)

Strongly correlated transport is very important to quantum computation, quantum communication, quantum information and even renewable-energy materials. There are different ways to achieve strongly correlated transport, but we will focus on the way using field-effect transistor (FET). FET is to use an electric field (gate) to control the transport of electrons or holes. There are mainly four kinds of FETs: quantum-dot FETs, quantum-interference FETs (QuIETs), FETs based on superconductor and FETs based on laser beam and magnetic field. We will introduce the experimental designs of them as well as the interpretation of their results. We will also talk about some other ways to get strongly correlated quantum system.

* zhongling.ji@stonybrook.edu