

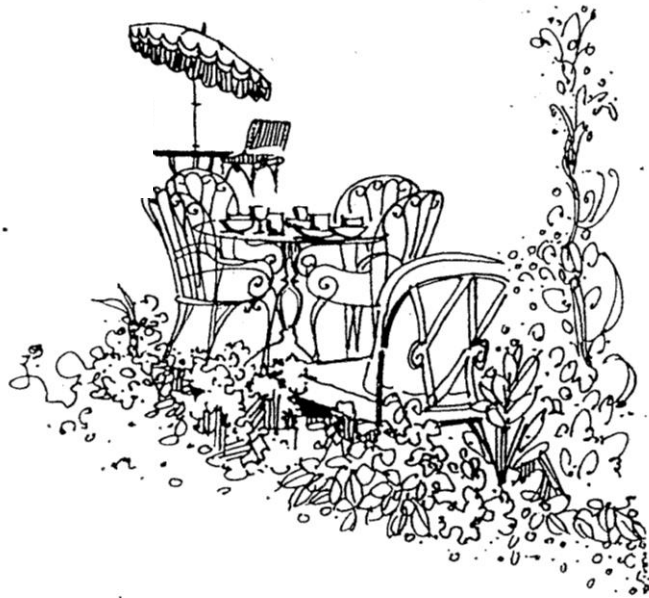
Chez Pierre

Presents ...

Monday, September 23, 2013

12:00pm

MIT Room 4-331



Leonid Glazman
Yale University

“Helical edge resistance introduced by charge puddles”

Electron puddles created by doping of a 2D topological insulator may violate the ideal helical edge conductance. Because of a long electron dwelling time, even a single puddle may lead to a significant inelastic backscattering. We find the resulting correction to the perfect edge conductance. Generalizing to multiple puddles, we assess the dependence of the helical edge resistance on temperature and doping level. Puddles with odd electron number carry a spin and are effective in backscattering in a broad temperature range. That may explain the experimentally found weak temperature dependence of the excess resistance of helical edges.