



Transport Through One-Dimensional Mesoscopic Structures

Thierry Giamarchi

In one dimension interactions have a profound effect on the nature of the excitations of a quantum systems, leading to a physics quite different from the generic one in high dimension, where single particle excitations are the norm. Due to interactions one-dimensional quantum systems are dominated by collective excitations, which have very often a topological character. This has profound consequences for the transport in such systems. I will discuss in this talk how one can compute the transport in one-dimensional and quasi-one dimensional systems. I will discuss also some recent experiments in the context of cold atomic gases where such physics has been probed.