SFB/TRR 21 - Seminar

24. Oktober 2016, Stuttgart

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Anderson Localization of Ultracold Atoms in 2D Custom Disordered Potentials

Anderson localization is a general phenomenon which occurs when coherent waves propagate in disordered systems. Interference effects between multiply scattered waves act to inhibit the propagation, resulting in spatially localised wavepackets. In our experiment we investigate Anderson localization in a two-dimensional environment. Beginning with a Bose-Einstein condensate, we transfer the atoms into a two-dimensional trap with a large aspect ratio of 900, allowing lateral ballistic motion, while freezing out vertical motion. We then create a series of disordered channels between two reservoirs using a spatial light modulator, and measure the resistance of the channel. I will report on our observations of disorder-induced suppression of transport.

24. Oktober 2016, 10:00 Uhr

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