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## [431] Towards non-destructive transport measurements of interacting fermions

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In recent years, it has become possible to investigate transport phenomena using ultracold atoms in a twoterminal configuration where two reservoirs are connected through a mesoscopic channel. The measurements, however, rely on comparing different samples because of the destructive nature of probing methods, which makes the measurements sensitive to even very weak fluctuation in the atomic sample preparation. In order to achieve more precise measurements, we will implement non-destructive measurements of atomic currents featuring the cavity QED technique. We are currently developing a new apparatus where a degenerate Fermi gas of Lithium-6 is coupled to a high-finesse optical cavity. In the poster, we will discuss the non-destructive probing scheme using the cavity and present the recent progress on the apparatus.

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