

# Floquet-engineered pair and single-particle filters in the Fermi-Hubbard model

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We investigate the Fermi-Hubbard model with a Floquet-driven impurity in the form of a local time-oscillating potential. For strong attractive interactions a stable formation of pairs is observed. These pairs show a completely different transmission behavior than the transmission that is observed for the single unpaired particles. Whereas in the high-frequency limit the single particles show a maximum of the transition at low driving amplitudes, the pairs display a pronounced maximum transmission when the amplitude of the driving is close to the interaction amplitude  $U$ . We use the distinct transmission behavior to design filters for pairs or single particles, respectively. For example, one can totally block the transmission of single particles through the driven impurity and allow only for the transmission of pairs. We quantify the quality of the designed filters.

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