

## Strongly interacting ultracold quantum gases of fermionic Ytterbium-173

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In contrast to the more common alkali atoms, Ytterbium features a strong decoupling between the nuclear and the electronic spin degree of freedom and possesses a metastable excited state. In consequence, interactions cannot be enhanced with standard magnetic Feshbach resonances as in alkalis. We report on the discovery of a new orbital interaction-induced Feshbach resonance in Ytterbium-173. In a second experiment, we investigated the  $SU(N)$ -symmetric Fermi-Hubbard model, realized by loading Ytterbium-173 atoms into a three-dimensional optical lattice. We prepared a low-temperature  $SU(N)$ -symmetric Mott insulator and characterized the Mott crossover by probing it locally, representing important steps towards probing predicted novel  $SU(N)$ -magnetic phases.

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