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Quantum Quench Dynamics of a Fermi Impurity MARKO CETINA, MICHAEL JAG, RIANNE LOUS, ISABELLA FRITSCHE, Institute for Experimental Physics, Innsbruck University and Institute for Quantum Optics and Quantum Information, Innsbruck, GEORG BRUUN, RASMUS CHRISTENSEN, Department of Physics and Astronomy, University of Aarhus, MEERA PARISH, JESPER LEVINSEN, School of Physics and Astronomy, Monash University, RUDOLF GRIMM, Institute for Experimental Physics, Innsbruck University and Institute for Quantum Optics and Quantum Information, Innsbruck — We investigate the dynamics of a ^{40}K impurity in a ^{6}Li Fermi sea after a quench into the strongly interacting regime. Using atom interferometry, we observe the formation dynamics of both the attractive and the repulsive polarons. For resonant ^{40}K-^{6}Li interactions, we observe quantum beats due to a simultaneous excitation of the upper and lower branches of the interacting many-body system.

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