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An Acousto-Optical High Bandwidth Arbitrary Lattice Generator for ^{87}Rb Z. S. SMITH, M. E. W. REED, A. DEWAN, S. L ROLSTON, Joint Quantum Institute/University of Maryland and NIST, College Park — We discuss the implementation and characterization of our high-bandwidth arbitrary lattice generator. The periods and phases of multiple simultaneous 1D lattices can be modulated, swept and jumped at MHz rates to produce both arbitrary time-averaged potentials and dressed-band Hamiltonians. A Mach-Zehnder interferometer spans the dynamic range of the lattice allowing its complete characterization and stabilization in-situ. We demonstrate both disordered and dressed band Hamiltonians.

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