

Abstract Submitted
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Improved FPGA-Controlled Microwave Source for Cold Atom Experiments ISAIAH MORGENSTERN, SHAN ZHONG, QIMIN ZHANG, ARNE SCHWETTMANN, University of Oklahoma — We present our updated FPGA-controlled microwave source for controlling the time-dependent microwave-dressing of the ground state hyperfine levels of a Bose-Einstein condensate. The updated design utilizes commercial FPGA, DDS, and LCD boards for easy setup of the system. The FPGA control allows versatile programming of fast, arbitrary, time-dependent changes of amplitudes, phases, and frequencies. A 20 W amplifier increases the signal strength to the amplitudes necessary for microwave dressing of cold atoms. A simple homebuilt antenna inside the vacuum chamber irradiates the atoms. The microwave source is modular, so it can be easily reprogrammed and adjusted to fit a wide variety of experimental setups.

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