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**High power rapidly tunable system for laser cooling**[1] EDUARDO GOMEZ, VICTOR MANUEL VALENZUELA JIMENEZ, LORENZO HERNANDEZ DIAZ, Institute of Physics, UASLP — Laser cooling experiments require light sources that can be rapidly tuned in frequency and power. Keeping as much power as possible increases the number of trapped atoms. We present a configuration that combines the capabilities of rapid frequency tuning with power amplification in a robust system. A double pass acousto-optic modulator (AOM) changes the frequency of the laser beam while keeping the alignment approximately constant. We decouple the modulation and amplification sections using an optical fiber and we keep the power out of the fiber constant by feed-forward on the amplitude modulation of the AOM. The tapered amplifier is in a double pass configuration and requires an input of only 1 mW to obtain 1 W out. A second modulator controls the intensity after the amplifier and generates additional beams that we use, for example, to do absorption imaging. We demonstrate the transfer of atoms to a dipole trap using the system.

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