

Abstract Submitted
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Production of 10.4 W of single frequency coherent light at 780 nm by second harmonic generation¹ MARTIN LICHTMAN, MICHAL PIOTROWICZ, MARK SAFFMAN, University of Wisconsin — We have developed a high power, 10.4 W single frequency source at 780 nm, using second harmonic generation in a double-pass arrangement through a 50 mm long PPLN crystal. The source power is from a 20 W erbium-doped fiber amplifier at 1560 nm, giving a conversion efficiency of 52%. Comparison of the conversion efficiency with calculations based on a modified Boyd-Kleinman theory and numerical solution of the non-linear Schrödinger equation will be presented. The 780 nm light is used to create an array of blue-detuned traps for quantum computing experiments with Cs atoms.

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