

Abstract Submitted
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Coherent Light Generation Using Four-Wave Mixing ERIK BREKKE, LAURA ALDERSON, St. Norbert College — Four-wave mixing can be used to generate coherent, diffraction limited output beams, with frequencies difficult to acquire in commercial lasers. Here a narrow ECDL locked to the two photon 5s-5d transition in Rubidium, combined with a tapered amplifier system, generates a high power cw beam at 778 which is used to generate coherent light at 420 nm through parametric four-wave mixing. By controlling both the intensity and frequency of the incoming beam, this process has been optimized, and the frequency dependence analyzed. The efficiency of the process is limited when on resonance, and further investigations are underway to increase efficiency and characterize the frequency of the generated beam.

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