

Abstract Submitted
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Development of Low-Power CO₂ Laser for CTIX Beat-Wave Experiment¹ BEN ZHU, ROBERT HORTON, DAVID HWANG, FEI LIU, RUSSELL EVANS, Dept. of Applied Science, UC Davis — To enhance the flexibility of the two high-power Lumonics CO₂ TEA lasers to be used on our beat-wave current drive experiment, we are in the process of restoring two low-power CO₂ lasers previously used as drivers for FIR experiments. [1] The expected laser characteristics from previous operation are 10W steady-state and up to 5kW pulsed at 200nsec with Q switching. The frequencies of the high-power lasers are critical for the beat-wave current drive experiment. At low power, the operating wavelength may be accurately tuned using a rotatable diffraction grating. Upon completion of the restoration, the CO₂ lasers will initially be used for gain testing of the Lumonics pulsed lasers. Later, the low-power lasers will be used for mode locking operation of the Lumonics lasers. The low-power CO₂ lasers have many other applications; for instance, they can also be used for scattering diagnostics. The results of steady-state operation and gain testing of the high-power CO₂ laser will be presented.

[1] M. M. T. Loy and P. A. Roland, Rev. Sci. Instrum., Vol. 48 #6 May 1977

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