

Abstract Submitted
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Intense Nanosecond-Pulsed Cavity-Dumped Laser Radiation at 1.04 THz¹ THOMAS WILSON, Marshall University — We report first results of intense far-infrared (FIR) nanosecond-pulsed laser radiation at 1.04 THz from a previously described² cavity-dumped, optically-pumped molecular gas laser. The gain medium, methyl fluoride, is pumped by the 9R20 line of a TEA CO₂ laser³ with a pulse energy of 200 mJ. The THz laser pulses contain of 30 kW peak power in 5 nanosecond pulse widths at a pulse repetition rate of 10 Hz. The line width, measured by a scanning metal-mesh FIR Fabry-Perot interferometer, is 100 MHz. The novel THz laser is being used in experiments to resonantly excite coherent ns-pulsed 1.04 THz longitudinal acoustic phonons in silicon doping-superlattices.

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²T.E. Wilson, *Proc. Int. Conf. Lasers '91*, (STS Press, McLean, VA), 762-767 (1992), and references therein.

³Cornelius T. Gross et al., *IEEE J. QE*, **QE-23**, 377-387 (1987).

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