A NEW FAR-INFRARED LASER: WITH LINEAR-POLARIZATION, LAMB-DIP-STABILIZATION, AND A GAUSSIAN-BEAM OUTPUT

K. M. EVENSON, M. D. ALLEN, *Time and Frequency Division, National Institute of Standards and Technology, Boulder, CO 80303-3328*; and E. C. C. VASCONCELLOS, *Instituto de Física "Gleb Wataghin," Departamento de Eletrônica Quântica Universidade Estadual de Campinas*

(UNICAMP), 13083-970 Campinas, SP, Brazil.

A significantly improved far-infrared laser has been constructed for operation in the range of 30 to 150 microns. The laser uses nearly-transverse-pumping so that the low-pressure gain curve has a Lamb-Dip at its center and the laser can be stabilized to $\frac{\Delta\nu}{\nu} = \pm$ 1 x 10^{-8}. It uses a near Brewster angle polypropylene beam splitter for the output coupler, which permits a diffraction limited focusing of its output. The laser is used for the discovery of new laser lines and the measurements of their frequencies. The operational characteristics of the laser and its attributes will be described.