OPTICALLY PUMPED FAR-INFRARED LASERS FROM METHANOL ISOTOPOMERS: $^{12}CD_3OH$, $^{12}CH_3OD$, AND $^{12}CH_2DOH$; NEW LASER LINES AND FREQUENCY MEASUREMENTS

E.C.C. VASCONCELLOS, S.C. ZERBETTO , *Instituto de Fisica Gleb Wataghin, Departamento de Eletronica Quantica, Universidade Estadual de Campinas (UNICAMP), 13083-970, Campinas, SP, Brazil* ; L.R. ZINK, and K.M. EVENSON, *National Institute of Standards and Technology, Time and Frequency Division, Boulder, CO 80303-3328.*

Methanol and ten of its isotopomers have generated over 2000 far-infrared laser lines when pumped by CO_2 lasers. We report here 28 new laser lines from the isotopomers $^{12}CD_3OH$, $^{12}CH_3OD$, $^{12}CH_2DOH$ along with their frequencies, relative intensities, relative polarizations and pump offsets. An efficient CO_2 laser with extended line coverage provided pumping from high J-fundamental, sequence and hot-band CO_2 transitions. Many new short-wavelength (below 100 μm) FIR laser transitions were observed.