

TUNABLE INFRARED SPECTROMETER BASED ON DIFFERENCE-FREQUENCY GENERATION IN AgGaS_2
FOR LINESHAPE STUDIES IN N_2O

A. VITCU, R. WEHR, R. CIURYLO, J. R. DRUMMOND and A. D. MAY, *Department of Physics, University of Toronto, ON M5S 1A7, Canada.*

A high resolution (2 MHz) and high signal-to-noise ratio, cw, tunable, infrared spectrometer has been constructed. It is based on difference-frequency generation in a nonlinear crystal of AgGaS_2 , by combining two tunable ring dye lasers. With present dyes (Sulfrhodamine 640 and Rhodamine 590) an output wavelength range of 7.77 - 9.10 microns is covered. With total input power of 600 mW, the output power exceeds 100 nW at the peak of the emission curve. This range of wavelength and power allows us to do line shape measurements in important atmospheric gases such as N_2O and CH_4 .