Self- and Foreign Gas Broadening in the $\nu_1+\nu_3$ Band of SO_2*

B. SUMPF**, D. REHLE, H.-D. KRONFELDT, *Optisches Institut der Technischen Universit t Berlin, Sekr. PN 0-1, Hardenbergstr. 36, 10623 Berlin, Germany*; V.V. LAZAREV***, *Institute of Atmospheric Optics, Siberian Branch, Russian Academy of Sciences, 1 Academicheskii av., Tomsk 634055 Russia.*

Experimental results concerning the self-broadening of about 100 lines in the $\nu_1+\nu_3$ band of SO_2 near 2499 cm^{-1} will be presented. The experiments were carried out with a tunable diode laser spectrometer in pulsed mode. The dependence of the broadening coefficient on the rotational quantum number J'' and K_a'' will be presented together with the comparison to our former results concerning the ν_1 and ν_3 band, respectively. In the studied quantum number range $2 \leq J'' \leq 47$, $0 \leq Ka'' \leq 13$ we observe similar to the other bands a pronounced K_a'' dependence but only a weak J'' dependence. The investigations are completed by measurements with the perturbers He, Ne, Ar, Kr, Xe, N_2, O_2, H_2, and D_2 for some selected lines.

* This project was supported by the *Deutsche Forschungsgemeinschaft*

** B.S. acknowledges a grant from the *Deutsche Forschungsgemeinschaft*

*** V.V.L. acknowledges a grant from the *Deutscher Akademischer Austauschdienst*