SENSITIVE FLUORESCENCE SPECTROSCOPY OF JET COOLED $^{15}NO_2$

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A spectroscopic setup designed for high resolution spectroscopy of jet cooled $^{x}O^{y}N^{z}O$ isotopologues is described with the aim to obtain high quality laboratory spectra for the study of the mass independent effect in this triatomic molecule. A special piezo valve allows operation at minimal gas consumption and time gated fluorescence spectroscopy is used as a highly sensitive detection technique. The performance of the setup is demonstrated on the first A^2B_2 - X^2A_1 rovibronic transitions of $^{15}N^{16}O_2$ measured in a jet. The gas consumption is as low as 0.025 mg per cm^{-1} spectral range. Special efforts have been made to extend applications to lower energies, using a LN_2 cooled germanium detector.

[1] E.A. Volkers, A. Vredenborg, H. Linnartz, J. Bulthuis, S. Stolte, R. Jost, Chem. Phys. Lett., submitted (2004).