TIME RESOLVED RAPID SCAN FT-UV SPECTROSCOPY APPLIED TO KINETICAL INVESTIGATIONS ON HALOGEN OXIDES

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A recently developed rapid scan method for FT-Spectrometers is used to observe reaction kinetics in homogeneous gas reactions of halogens with ozone. Using a rapid scan FTS (BRUKER IFS 120 HR), nonstatic interferograms are recorded. After data processing time dependent spectra are yielded. The temporal resolution of 1 - 3 ms makes it possible to observe homogeneous gas reactions.
The method is applied to the investigation of halogen reactions with ozone. As reaction chamber a cooled flow cell is employed. The samples (Br_2, Cl_2, I_2 with O_3) are cooled to stratospheric temperatures. Reactions are initiated by applying a photolysis flash. The experiment is recorded using UV absorption spectroscopy. Intermediate species as well as reaction products are observed. In correspondence to chemical modelling kinetical constants are derived.