KINETIC MICROWAVE SPECTROSCOPY OF RADICALS PRODUCED BY EXCIMER LASER PHOTOLYSIS.

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UV-laser photolysis is a highly selective method for creating radicals for study by microwave absorption spectroscopy. Unfortunately, if traditional "time-averaged" frequency scanning is employed the radical spectrum is often hidden behind that of the precursor. However, if the laser is pulsed, reactive molecules can be discriminated and characterised by the kinetics of their creation and destruction. By using a PC-controlled acquisition board, kinetic detection and frequency scanning can be combined to selectively search for radicals of a given lifetime. In addition real-time signal enhancement techniques can be used to increase sensitivity. We give recent results including the measurement of the rotational spectrum of CBr and the search for HCBr by photolysis of bromoform.