NOVEL APPLICATIONS OF A SHAPE SENSITIVE DETECTOR 2: UV-MW RESONANCE

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We demonstrate the capability of using chirped pulsed Fourier transform microwave spectrometer (CP-FTMW) with UV double-resonance techniques. The application of this technique greatly simplifies the rotational spectrum, facilitating the simple assignment of the rotationally resolved electronic spectra of several compounds of interest. A Sirah dye laser pumped by a ND:YAG laser generated a variable laser beam which was then transferred to the UV region using a doubling crystal. Prior knowledge of ΔJ assignments from the rotational spectrum allowed for the straightforward monitoring of the intensity of specific rotational lines in the ground state spectrum as we scanned the UV laser beam. UV-MW double resonance was seen for many of the ΔJ1$\rightarrow$2, 2$\rightarrow$3, and 3$\rightarrow$4 rotational transitions of Aniline and Phenylacetylene. The application of this technique to other molecular systems and processes will also be discussed.