LASER SPECTROSCOPY OF HYDROGEN PEROXIDE EMBEDDED IN HELIUM NANODROPLETS

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Helium nanodroplets provide a gentle matrix in which to isolate reactive species for spectroscopic investigations. In our ongoing effort to generate radical species in helium nanodroplets, we have recently focused our attention on the highly reactive hydrogen peroxide (H_2O_2) molecule, a potential precursor for the hydroxyl radical. The infrared spectrum of hydrogen peroxide was measured in helium nanodroplets using a *cw* OPO infrared laser in the OH stretching region. Several rovibrational transitions in the v_5 band of hydrogen peroxide (and HOOD) were recorded and assigned. Intensities, shapes, and assignments of lines will be discussed, as will prospects for the use of hydrogen peroxide in the production of hydroxyl radicals in helium droplets using laser photolysis.