ROVIBRATIONAL SPECTROSCOPY OF THE OH-O_3 AND C_2H_4-O_3 COMPLEXES IN ^{4}He NANODROPLETS

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The weakly bound complexes X-O_3 (X=OH, C_2H_4) have been isolated in helium nanodroplets and probed with infrared laser spectroscopy. Measurements are carried out in the high frequency OH/CH stretch region (2900-3600 cm^{-1}) and in the OOO symmetric and antisymmetric stretch region near 1050 cm^{-1}. Many of the observed bands exhibit rotational fine structure, allowing for structural assignments via Stark spectroscopy. Rotationally resolved vibrational bands of the OH-O_3 complex indicate a rather weak interaction, as the orbital angular momentum of the unpaired electron is unquenched and remains strongly coupled to the OH bond axis.