ANALYSIS OF THE HIGH-RESOLUTION MID-INFRARED SPECTRUM OF DEUTERATED WATER CLUSTERS

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We have obtained rotationally-resolved infrared spectra of fully deuterated water clusters and Ar-D_2O clusters in the D_2O bending region near 1185-1205 cm^{-1} using a continuous-wave cavity ringdown spectrometer (cw-CRDS) with a quantum cascade laser (QCL) light source. These clusters were produced in a continuous supersonic expansion from a 150 μm x 1 cm slit using argon carrier gas, giving rovibrational transitions with a full width at half maximum of approximately 20 MHz. We will present our assignment of the Ar-D_2O spectra and preliminary analysis of spectra of other clusters (particularly our results for $(D_2O)_2$).