DETERMINATION OF ABSORPTION CROSS SECTIONS OF SURFACE-ADSORBED NITRIC ACID IN THE 290-330 NM REGION BY BREWSTER ANGLE CAVITY RING-DOWN SPECTROSCOPY

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We have measured absorption cross sections of surface-adsorbed nitric acid in the 290-330 nm region with Brewster angle cavity ring-down spectroscopy. The 295 K absorption cross sections for nitric acid adsorbed on fused silica surfaces are at least two orders of magnitude larger than those in the gas phase in the wavelength region studied. Our work extends the application of Brewster angle cavity ring-down spectroscopy to the UV region, and further demonstrates the capabilities of this technique. Our results can account for the field-observed large differences between nitric acid photolysis rates on the surface and that of the gas phase.