DISSOCIATION ENERGY OF THE N_2H^+-Ar COMPLEX

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The N_2H^+-Ar complex has been studied by means of IR photodissociation spectroscopy in a tandem mass spectrometer [a] in the region between 2500 and 6000 cm^{-1}. More than 25 bands have been found, 14 of them are at least partly rotationally resolved. Rotational analysis shows that the complex has a linear proton-bound geometry. Some bands in the low frequency region have an unusual structure. Transitions into levels below certain J' are completely absent because the upper states are below the lowest dissociation threshold. This observation allowed for an accurate determination of the binding energy of the complex, $D_0 = 2781.5 \pm 1.5$ cm^{-1}.

[a] S. A. Nizkorodov, Y. Spinelli, E. J. Biekse, J. P. Maier, and O. Dopfer, Chem. Phys. Lett. 265, 303 (1997).