

THE INFRARED SPECTRUM OF H_2O_2^+ TRAPPED IN SOLID NEON

CATHERINE L. LUGEZ, WARREN E. THOMPSON, and MARILYN E. JACOX, *Optical Technology Division, National Institute of Standards and Technology, Gaithersburg, MD 20899-8441.*

When a $\text{Ne}:\text{H}_2\text{O}_2^+$ sample is codeposited at approximately 5 K with a beam of microwave-excited neon atoms, photoionization and Penning ionization of the H_2O_2 leads to the stabilization of the H_2O_2^+ cation. Although the energy of the excited neon atoms exceeds that required for the formation of HO_2^+ from H_2O_2 , as has been previously found in photoionization studies, the yield of this fragment ion is small. The infrared spectra observed for H_2O_2^+ and for its deuterium-substituted isotopomers will be compared with those predicted by *ab initio* calculations.