THE INFRARED SPECTRUM OF $H_2O_2^+$ TRAPPED IN SOLID NEON

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When a Ne:$H_2O_2^+$ 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.