

INFRARED STUDY OF THE WATER-HYDROXYL RADICAL COMPLEX TRAPPED IN SOLID NEON

MARILYN E. JACOX and WARREN E. THOMPSON, *Sensor Science Division, National Institute of Standards and Technology, Gaithersburg, MD 20899-8441.*

The most prominent infrared absorptions which appear when a Ne:O₂ mixture is codeposited at 4.3 K with a Ne:H₂ mixture that has been passed through a microwave discharge are those of H₂O, HO₂, the HOHOH anion, and the H₂O(HO) complex. The absorptions of this complex correspond well with those previously obtained in argon-matrix experiments^a. Photodetachment of the HOHOH anion leads to extremely great intensification of the absorptions of the H₂O(HO) complex. The infrared spectra of the normal and deuterium-substituted complex and the mechanisms of formation and photodestruction of the HOHOH anion will be considered.

^aA. Engdahl, G. Karlström, and B. Nelander, *J. Chem. Phys.* 118, 7797 (2003).