ABSORPTIONS BETWEEN 3000 AND 5500 cm^{-1} OF NORMAL AND OXYGEN-18 ENRICHED O_4^+ AND O_4^- TRAPPED IN SOLID NEON

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

Very recently, Ricks, Douberly, and Duncan[a] have assigned absorptions in the 3000 to 4300 cm^{-1} spectral region to combination bands of gas-phase *cyc*-O_4^+. Other experiments by Kelley, Robertson, and Johnson[b] identified vibronic bands between 4000 and 5300 cm^{-1} of gas-phase O_4^- complexed with an argon atom. Absorptions corresponding to these bands have been observed in the present experiments for both *cyc*-O_4^+ and O_4^-, as well as for several of their isotopologues trapped at 4.3 K in solid neon. The results will be compared with the gas-phase data, and possible assignments will be considered taking into account the results of isotopic substitution.

[a] A. M. Ricks, G. E. Douberly, and M. A. Duncan, Int. J. Mass Spectrom., doi:10.1016/j.ijms.2009.01.009 (2008).
[b] J. A. Kelley, W. H. Robertson, and M. A. Johnson, Chem. Phys. Lett. 362, 255 (2002).