Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Solving the Puzzle of Tetratomic, 23-Valence-Electron Molecules
MARILYN JACOX, Natl. Institute of Standards & Technology — Because of extensive electron correlation, the ground-state structures, infrared spectra, and chemical bonding properties of a number of tetratomic molecules which possess 23 valence electrons are anomalous. Approaches which have recently been helpful in understanding this phenomenon include *ab initio* calculations and spectroscopic observations of these species trapped in solid neon at temperatures near 4 K. Molecules for which infrared spectra have been obtained and which will be discussed include NNO_2^-, NO_3, O_4^+, and BF_3^+.

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Date submitted: 29 Nov 2009 Electronic form version 1.4