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 \textit{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$_3^+$. 

Marilyn Jacox 
Natl. Institute of Standards & Technol.