PFI-ZEKE STUDY OF ThO^+

VASILIY GONCHAROV and MICHAEL C. HEAVEN, *Department of Chemistry, Emory University, Atlanta, GA 30322*.

Pulsed Field Ionization-Zero Kinetic Energy (PFI-ZEKE) spectroscopy has been successfully applied to study the rotational structure of actinide oxide cations. In this work the rotational constant (and bond length) for ThO^+ in its ground state along with the accurate value of the ionization potential for ThO were obtained from PFI-ZEKE spectra. The results of the search for low-lying vibrational and electronic states of ThO^+ will also be presented.

Mass-Analyzed Threshold Ionization (MATI) spectra and PFI-ZEKE spectra were recorded for Th atom. The results provided an improvement to the accepted literature value of the IP for thorium atom by at least one order of magnitude.