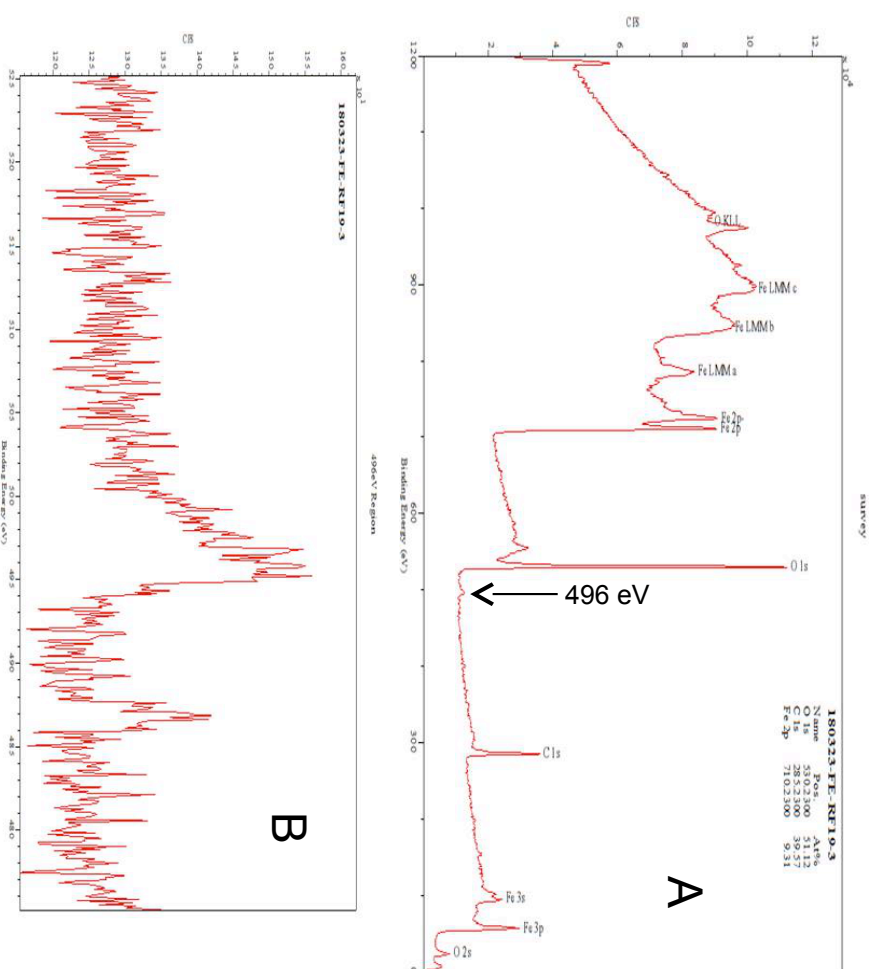
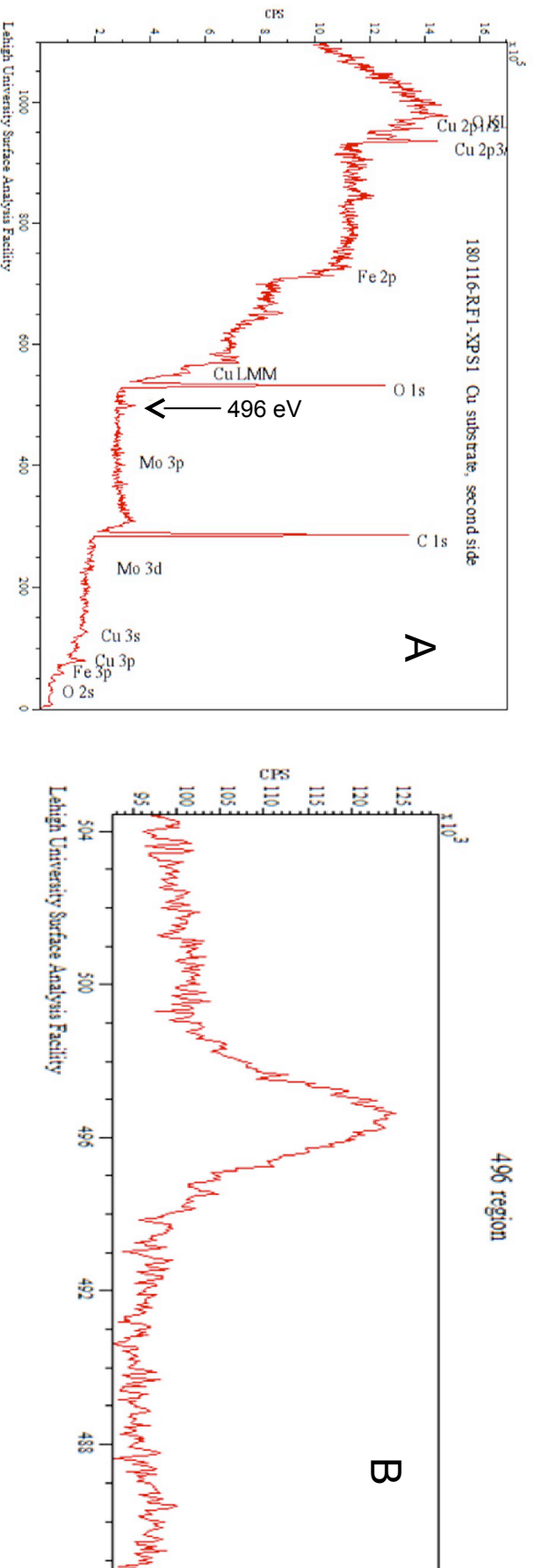


XPS Total Binding Energy of H2(1/4)



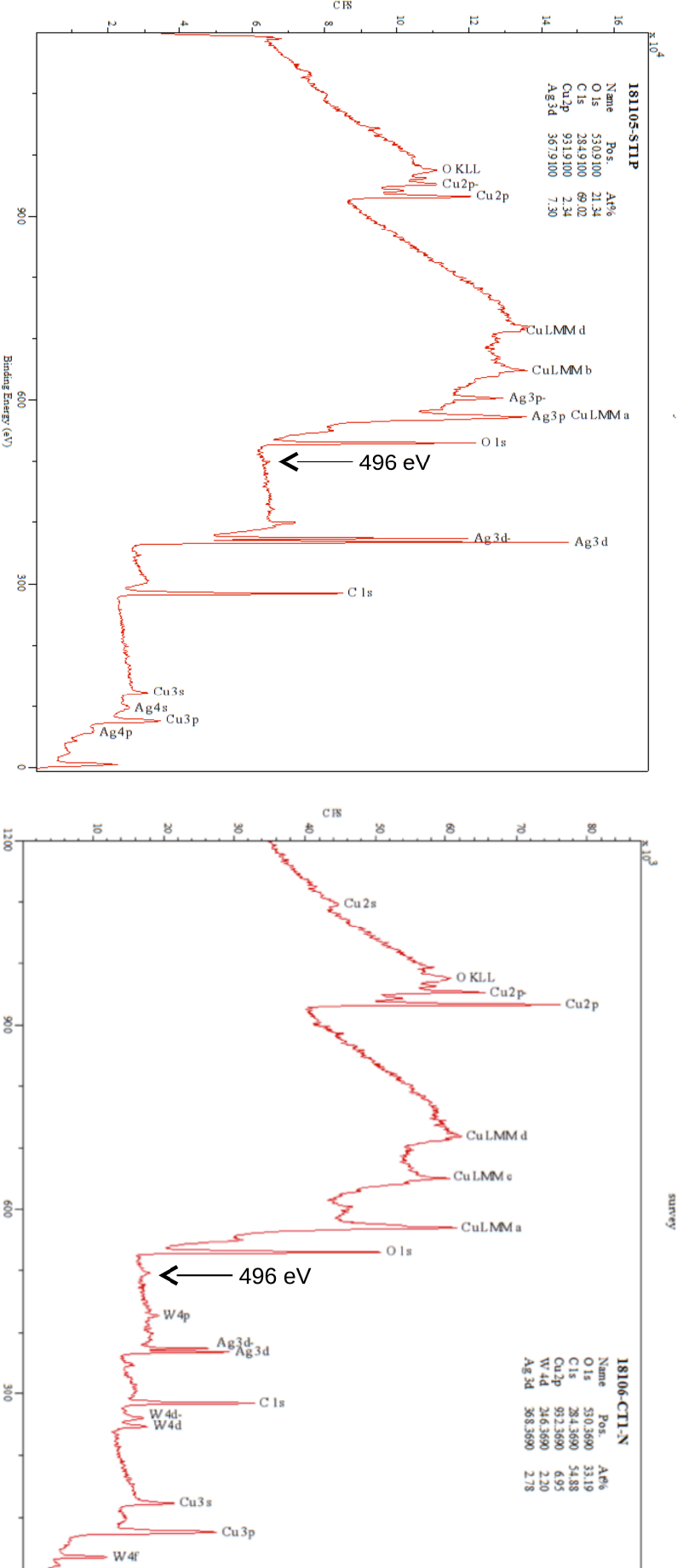
The XPS spectra of the hydrido Fe web compound having a peak at 496 eV assigned to H2(1/4) wherein other possibilities such Na, Sn, and Zn were eliminated since only Fe, O, and C peaks are present and other peaks of the candidates are absent. A. Survey scan. B. High resolution scan in the region of the 496 eV peak of H2(1/4).

XPS Total Binding Energy of H2(1/4)



The XPS spectra of the hydrido Mo web compound having a peak at 496 eV assigned to H2(1/4) wherein other possibilities such Na, Sn, and Zn were eliminated since only Mo, O, and C peaks are present and other peaks of the candidates are absent. Mo 3s which is less intense than Mo3p was at 506 eV with additional samples that also showed the H2(1/4) 496 eV peak. A. Survey scan. B. High resolution scan in the region of the 496 eV peak of H2(1/4).

XPS Confirmation of Molecular Hydrido of $\text{H}_2(1/4)$ Binding Energy



The XPS spectra on copper electrodes post ignition of a 80 mg silver shot comprising 1 mole% H_2O , wherein the detonation was achieved by applying a 12 V 35,000 A current with a spot welder. The peak at 496 eV was assigned to $\text{H}_2(1/4)$ wherein other possibilities such Na, Sn, and Zn were eliminated since the corresponding peaks of these candidates are absent. Raman post detonation spectra showed an inverse Raman effect peak at about 1940 cm^{-1} that matches the free rotor energy of $\text{H}_2(1/4)$ (0.2414 eV).