

X-ray Photoemission Study of MgB₂. R. P. VASQUEZ, *Jet Propulsion Laboratory, Pasadena, CA*, C. U. JUNG, MIN-SEOK PARK, HEON-JUNG KIM, J. Y. KIM, and SUNG-IK LEE, *Pohang University of Science and Technology, Pohang, Republic of Korea*

A high quality sintered pellet of MgB₂ has been studied by x-ray photoemission spectroscopy (XPS), and compared to measurements from MgO and MgF₂ single crystals. The as-grown surface has a layer which is Mg-rich and appears to consist primarily of Mg(OH)₂ and MgCO₃, similar to observations on alkaline earth-containing cuprate high temperature superconductor surfaces. The surface reacted layer is effectively removed by etching, and the subsurface region is Mg-deficient. This nonideal near-surface region may explain varied scanning tunneling spectroscopy results. The XPS core level and Auger signals of MgB₂ are similar to measurements from metallic Mg and transition metal diborides, and the measured valence band is consistent with the calculated density of states.