

Abstract Submitted
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Interaction between M/CuO (M= Ti, V, Cr, Mn) as studied by X-ray Photoelectron Spectroscopy¹ ANIL CHOURASIA, JACOB STAHL, Texas A&M University-Commerce — The technique of x-ray photoelectron spectroscopy has been utilized to investigate the chemical reactivity between metal M (where M is Ti, V, Cr, or Mn) and copper oxide at the M/CuO interface. Thin films of copper (about 20 nm) were deposited on silicon substrates by the e-beam method. Such samples were oxidized in an oxygen environment in a quartz tube furnace at 400°C. The formation of CuO was checked by the XPS spectral data. Thin films of the metal M were then deposited on these CuO sample. The M 2p, oxygen 1s and copper 2p regions were investigated by XPS. The magnesium anode (energy = 1253.6 eV) has been used for this purpose. The metal 2p peaks shift to the high binding energy side while the satellites associated with the copper core level peaks disappear. The shifting of the metal 2p peaks is associated with the formation of the oxide. The disappearance of the satellites in the copper 2p region is associated with the reduction of copper oxide to elemental copper. The spectral data show chemical reactivity at the M/CuO interface.

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