XPS Study of CuO, WO_3 and CuWO Nanoparticles-Based Films

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Abstract. Interest in clean and sustainable technologies is rapidly growing and hydrogen is widely used in this field. With this development, more emphasis is placed on hydrogen gas sensors as hydrogen poses significant risks due to its explosive nature and flammability [1].
Structural parameters and surface properties plays a significant role in interaction of gas with sensor material [2]. Therefore, the nanoparticles of various materials are more and more explored.
To understand the surface evolution after annealing in the air we measured XRD, SEM and XPS of CuO, WO_3 and CuWO nanoparticles-based films prepared by magnetron-based gas aggregation technique.

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[2] H. Zhao, Y. Wang, Y. Zhou, Accelerating the Gas–Solid Interactions for Conductometric Gas Sensors: Impacting Factors and Improvement Strategies, Materials (Basel). 16 (2023). https://doi.org/10.3390/ma16083249.