

METAL OXIDE NANO-HETEROSTRUCTURES FOR GAS SENSING

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Single crystalline, metal oxide semiconductor nanowires (NWs) loaded with metal oxide nanoparticles (NPs) are very promising for developing a new generation of inexpensive, yet highly sensitive and more stable gas sensors. By supporting p-type metal oxide NPs on n-type metal oxide NWs, both chemical and electronic sensitization effects can be obtained, which can dramatically tune the response to target gases of the resulting hybrid nanomaterials, thus enabling the engineering of selectivity. Here we discuss the integration of such nanomaterials onto rigid and flexible substrates and study their gas sensing properties towards different species when operated under thermal heating and/or until UV light excitation.