Short Communication

Fabrication of a Co₃O₄/ZnO Heterostructure by Electrochemical Deposition

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Co₃O₄ thin films were fabricated using electrochemical deposition (ECD). Co(OH)₂ precursor films were deposited galvanostatically from an aqueous solution containing Co(NO₃)₂ and NH₄NO₃, and subsequently converted to Co₃O₄ by annealing in the air ambient. The Co₃O₄ films had two absorption edges corresponding to energy levels of 1.5 and 2.0 eV, and exhibited a clear p-type photo response in the photoelectrochemical measurement. The pn heterostructures were fabricated with ZnO as the n-type partner. ZnO was first deposited using ECD, Co(OH)₂ was subsequently deposited on it, and finally the sample was annealed. The fabricated Co₃O₄/ZnO structure exhibited clear rectification properties.

Keywords: electrochemical deposition, Co₃O₄, ZnO, heterostructure, diode

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