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Synthesis and Photoresponse of Hydrothermally Grown ZnO Nanowires AHMED AL-ASADI, LUKE HENLEY, SUJOY GHOSH, ABDIEL QUETZ, IGOR DUBENKO, Department of Physics, Southern Illinois University Carbondale, Carbondale- IL 62901, United States, NIHAR PRADHAN, LUIS BALICAS, National High Magnetic Field Laboratory, Florida State University, Tallahassee-FL 32310, United States, SAIKAT TALAPATRA, NAUSHAD ALI, Department of Physics, Southern Illinois University Carbondale, Carbondale- IL 62901, United States — We will present our results of hydrothermally grown ZnO nanowires (NWs) using ZnO nanoparticles as seeds. The seed layer was prepared simply by spraying commercially obtained ZnO nanoparticles with a diameter ∼20 nm mixed with Isopropanol (IPA) onto Si/SiO2. A detail structural characterization of the ZnO nanowires indicate that highly crystalline nanowires with an average diameter 45-55 nm and length 1 ∼ 1.3 μm with an optical band gap of ∼3.7 eV can be obtained using this method. We also show that a significant amount of photocurrent is generated in these nanowires when illuminated with UV radiation. The variation of photo response with light intensity as well as the nature of rise and decay of photocurrent will be presented and discussed in the light of available theoretical models.

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