

Two Layer Photo-Thermal Deflection Model to Investigate the Electronic Properties in BGaAs/GaAs Alloys

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Abstract : Photo-thermal deflection technique (PTD) is used to study the nonradiative recombination process in BGaAs/GaAs alloy with boron composition of 3% and 8% grown by metal organic chemical vapor deposition (MOCVD). A two layer theoretical model has been developed taking into account both thermal and electronic contribution in the photothermal signal allowing to extract the electronic parameters namely electronic diffusivity, surface and interface recombination. It is found that the increase of boron composition alters the BGaAs epilayers transport properties.

Keywords : photothermal deflection technique, two layer model, BGaAs/GaAs alloys, boron composition

Conference Title : ICPAM 2014 : International Conference on Physics of Advanced Materials

Conference Location : Venice, Italy

Conference Dates : November 13-14, 2014