

Abstract Submitted  
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**Probing the effect of dopants (donors) within InAs/InGaAs/InAlAs Asymmetric Heterostructure wafer by magneto-THz spectroscopy** MEHDI PAKMEHR, University at Buffalo (SUNY), Shiraz University, CHRISTIAN HEYN, WOLFGANG HANSEN, University of Hamburg — Probing the effect of impurities within semiconductor structures have been the topic of interest both from applied and scientific point of views. We studied the effect of dopants (donors) within InAs/InGaAs/InAlAs asymmetric heterostructure wafer by means of THz magneto-transmission (TR) spectroscopy, in conjunction with THz magneto-photoresponse (PR) spectroscopy. The sample wafer has been immersed in pumped liquid Helium at 1.6 K, while being exposed to sweeping magnetic field up to 10 Tesla, with THz laser beam (1.4 THz) being focused on sample by off-axis parabolic mirror. The transmitted beam was detected by silicon composite bolometer. Two broad absorption features other than sharp Cyclotron resonance (CR) absorption dip within magneto-TR signal attributed to  $1s \rightarrow 2P$  transition within donors of doped layer (InAlAs) in heterostructure. We plan to discuss the analysis of magneto-TR signal, in conjunction with Magneto-PR signals from Hall bar samples made from same type of wafer at same frequency to clarify how dopants could possibly alter these signals.

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