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Polarization dependent Optical Reflectance and Electroreflectance measurements of GaAs/AlGaAs multiple quantum well Bragg structure[1] MIM NAKARMI, Department of Physics, Brooklyn College-CUNY, NARESH SHAKYA, Department of Applied Physics, NYU-Polytechnic School of Enginering, VLADIMIR CHALDYSHEV, Ioffe Physico-Technical Institute, Russia. — Electroreflectance spectroscopy measurement provides sharp and derivative-like spectral features in the energy region of excitonic transitions, while suppressing uninteresting background effects due to electro-modulation. We employed both electroreflectance and optical reflectance spectroscopies to probe excitonic transitions in a GaAs/AlGaAs multiple quantum well (MQW) Bragg structure. The sample used in this experiment consists of 60 periods of quantum well structures with GaAs well layer (13 nm) and AlGaAs barrier layer (94 nm), grown by molecular beam expitaxy on a semi-insulating GaAs substrate. We observed a significant enhancement of excitonic features at the x(e2-hh2) exciton transitions due to double resonance along with sharp features of heavy-hole and light-hole ground state x(e1-hh1) and x(e1-lh1) exciton transitions around incident angle of 23 degree. We will present results on polarization dependent optical reflectance and electroreflectance measurements of this structure and discuss the effect of polarization in the first and second energy states.

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