

Abstract Submitted
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Electric field dependent Electroreflectance of GaAs/AlGaAs multiple quantum well Bragg structure at second quantum state MIM NAKARMI, Department of Physics, Brooklyn College and the Graduate Center of the CUNY, Brooklyn, NY 11210, USA, NARESH SHAKYA, Department of Applied Physics, NYU Tandon School of Engineering, Brooklyn, NY 11201, USA, VLADIMIR CHALDYSHEV, Ioffe Institute, 26 Polytekhnikeskaya, St. Petersburg 194021, Russia — Electroreflectance Spectroscopy was employed to study the effect of electric field on the 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 epitaxy on a semi-insulating GaAs substrate. The sample structure was designed to coincide the Bragg resonance peak with the $x(e2-hh2)$ exciton transitions. We observed a significant enhancement of excitonic feature around the $x(e2-hh2)$ exciton transition due to the double resonance along with the sharp features of $x(e1-hh1)$ and $x(e1-lh1)$ ground state exciton transitions by tuning the angle of incidence of the light. We will present the results on electric field dependent electroreflectance measurements of this structure and discuss the effect of electric field on the first and second energy states.

Mim Nakarmi
Brooklyn College-CUNY

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