

Editorial Comments:

The topic is interesting however I request authors to compare their results with observations otherwise the paper is metaphysical. Besides, a good number of references are missed.

Author feedback:

Thank you for your comments. I have finished the corrections for the number of references.

In the manuscript, we introduce a new method (named as electron interference model) for calculating sublevels of multi-quantum well structures. Based on the electron interference model, we calculated the sublevels of the GaAs/Al_{0.22}Ga_{0.78}As multi-quantum well structure grown by MOCVD, and measured infrared absorption of this multi-quantum well structure sample. Comparing the transition energies of electrons from the ground state in well to conduction states above barriers, theoretically calculated by electron interference model, with optical transition energies determined by the positions of infrared absorption peaks measured in experiment (i.e. observations) one by one, we see that the values calculated theoretically by electron interference model are all in excellent agreement with the results measured in experiment (i.e. observations).

To further demonstrate validity of the electronic interference model for calculation of sublevels of MQW structures, we prepared another sample of GaAs/Al_{0.3}Ga_{0.7}As MQW grown by molecular beam epitaxy (MBE). Likewise, the values calculated theoretically by electron interference model are all in excellent agreement with the results measured in photocurrent spectrum experiment (i.e. observations).

Meanwhile, based on Kronig-Penney model , We did the same calculations for the multi-quantum well structure grown by MOCVD and by MBE, respectively, and compared the values calculated theoretically with the results measured in experiment We see that values calculated theoretically are basically out of accord with results measured in experiment.

Finally, we conclude that calculating sublevels of GaAs/Al_xGa_{1-x}As MQW structure by the electronic interference model is more advantageous than that by K.P. model.

In the manuscript, theoretical basis is sufficient, calculating and comparing the values calculated theoretically with results measured in experiment are rigorous, and the conclusion is clear. We think that the manuscript is in line with the norms of scientific papers and do not know why it is metaphysical.