Effect of the Aluminium Concentration on the Laser Wavelength of Random Trimer Barrier AlxGa1-xAs Superlattices

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Abstract : We have numerically investigated the effect of Aluminium concentration on the the laser wavelength of random trimer barrier AlxGa1-xAs superlattices (RTBSL). Such systems consist of two different structures randomly distributed along the growth direction, with the additional constraint that the barriers of one kind appear in triply. An explicit formula is given for evaluating the transmission coefficient of superlattices (SL's) with intentional correlated disorder. The method is based on Airy function formalism and the transfer-matrix technique. We discuss the impact of the Aluminium concentration associate to the structure profile on the laser wavelengths.

Keywords : superlattices, correlated disorder, transmission coefficient, laser wavelength

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