

Abstract Submitted  
for the MAR05 Meeting of  
The American Physical Society

**Novel effect of thickness of separate confinement heterostructure layer** GAGIK SHMAVONYAN, State Engineering University of Armenia — Experiments show that the layer of separate confinement heterostructure has a significant influence on the emission spectrum of semiconductor optical amplifiers/superluminescent diodes. Reducing the thickness of layer of separate confinement heterostructure at p-side could improve the uniformity of carrier distribution among multiple quantum wells. With three  $\text{In}_{0.67}\text{Ga}_{0.33}\text{As}_{0.72}\text{P}_{0.28}$  quantum wells near the n-side, when the thickness of the layer of separate confinement heterostructure changes from 120 nm to 30 nm, the operation current for semiconductor optical amplifiers/superluminescent diodes to exhibit the full width at half maximum spectral width of above 270 nm could be reduced from 500 to 160 mA. The layer of separate confinement heterostructure is found to have a significant influence on the carrier distribution among the multiple quantum wells and the emission spectrum semiconductor optical amplifiers/superluminescent diodes.

Gagik Shmavonyan  
State Engineering University of Armenia

Date submitted: 29 Nov 2004

Electronic form version 1.4