Analysis of Multi-Polarization Switching in Vertical-Cavity Surface-Emitting Lasers Using Multi-peak gain model

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— This research investigated the multi-polarization switching (MPS) in vertical-cavity surface-emitting lasers (VCSELs) at constant temperature by simple multi-peak gain model. In experimental results, the phenomenon of the polarization switching (PS) in the VCSEL were arduous to definite quantitative analysis. A simple multi-peak gain model which included the temperature effect and current effect was established to match the MPS in the VCSEL. Simulation results match the experimental results well and show that the variation of temperature is a affecting factor of MPS. Therefore, the simple multi-peak gain model contributed a good understanding of multi-polarization switching in VCSELs.

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