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Analysis of Multi-Polarization Switching in Vertical-Cavity Surface-Emitting Lasers Using Multi-peak gain model CHUAN HSU, YU-FONG CHEN, PEI-HOU CHIN, SHAHAM QUADIR, YUEH-CHEN LI, YU-HENG WU, TSU-CHIANG YEN, Department of physics, National Sun Yat-sen University
— This research investigated the mulit-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 shoe 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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