

Abstract Submitted
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Conducting the lasing of single transverse modes in a commercial multi-mode VCSEL by the beam-profile adapted optical feedback
YU-HENG WU, CHUAN-PI HSU, DA-LONG CHENG, WANG-CHUANG KUO, TSU CHIANG YEN — This work studied the generation of single high-order transverse modes in a commercial multi-transverse mode VCSEL by applied beam-profile adapted optical feedback. To adapt the beam profile, the multi-transverse-mode beam profile of the solitary VCSEL was launched into a single-mode fiber, resulting in a quasi-Gaussian beam profile at the exit of fiber. The adapted beam passed through a spatial light modulator (SLM) and was then fed back into the laser's cavity. The SLM was designed to have the beam profile of a high-order transverse mode. The VCSEL would lasing the designated single transverse mode with a side-mode suppression ratio about 20 dB by the optical feedback. More experimental details will be presented and these results will help to expand the application of VCSELs.

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