

Abstract Submitted
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Unidirectional Emission from Asymmetric Polymer Microcavities ABDULLAH TULEK, Z.VALY VARDENY, University of Utah — Symmetric polymer microcavities that support whispering gallery modes such as microrings and microdisks have been extensively studied due to their ease of fabrication and high quality factors. However an important drawback is their isotropic emission. Two different microcavity configurations; namely a spiral, and a microdisk that contain a linear defect positioned in a specific orientation, have been proposed to overcome this problem. We measured the laser properties of such microcavities with DOO-PPV polymer as gain medium. Using the spiral microcavity we found unidirectional emission with a contrast ratio of about 8 in an angular emission window of $\sim 10^\circ$. For the ‘defected’ microdisk the observed contrast ratio was ~ 8 , and emission window was $\sim 25^\circ$. Different orientations and the sizes of the defect have been studied thoroughly.

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