WAVELENGTH TUNING OF THE SOFT-APPROACHED WHISPERING GALLERY MODE MICROLASERS FOR DISPLAY AND SENSING

Tuning the whispering gallery mode (WGM) resonances is significant in microcavity and microlaser studies as it lays the foundation of flexible applications. As the confined resonances are ultra-sensitive to the gain medium, the refractive index and the cavity size, the doping-flexible, elastic and cost-efficient soft-approached WGM microlasers are competitive candidates in wavelength tuning and promising in application broadening. However, though the reported soft candidates based on polymer materials have shown outstanding optical performances, the lack of controllable fabrication techniques dramatically decrease the practical values of the microlasers. Therefore, we have engineered soft-approached WGM microlasers with controllable approaches and enhanced flexibilities in wavelength tuning for practical applications like display and sensing. The proposed works not only broaden the applications for the tunable microlasers but are also significant in the spread of the soft-approached WGM microcavities for industrialization and commercialization.