

Review of microbottle resonators for sensing applications

ABSTRACT

Microbottle resonators (MBR) are bottle-like structures fabricated by varying the radius of an optical fiber. MBRs can support whispering gallery modes (WGM) by the total internal reflection of the light coupled into the MBRs. MBRs have a significant advantage in sensing and other advanced optical applications due to their light confinement abilities in a relatively small mode volume and having high Q factors. This review starts with an introduction to MBRs' optical properties, coupling methods, and sensing mechanisms. The sensing principle and sensing parameters of MBRs are discussed here as well. Then, practical MBRs fabrication methods and sensing applications are presented.