Microfluidic Fabrication of Double Emulsion Photonic Microlasers

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For various biomedical applications, biosensors are particularly important and can be introduced via photonic optical microlasers. In the past, such sensing systems have been created using biocompatible polymers like polyethylene glycol diacrylate (PEGDA). A microfluidic-based double emulsion method for fabricating optical polymer based microlasers has several advantages over those previous methodologies. Such advantages include the cost of production, fabrication time, and microlaser size. This innovative setup involves hydrophobic and hydrophilic droplet generators harnessed by custom 3D printed mounts. Key parameters such as flow rate (Q) and pressure (P) of both continuous and dispersed phases are important when determining the size of the double emulsion droplets. Once these droplets are made, they can result in a UV curable biomedical sensor fabricated via microfluidics. Such sensors have the potential to be implemented as point-of-care (POC) devices. Overall, biosensors have many prospects to grow and become an impactful technology in biomedical research and industry.