

Abstract Submitted
for the DFD20 Meeting of
The American Physical Society

3D Printing Aided Fluid Substance Dispensing in Micro-scale SZE

YI MAK, The University of Hong Kong — Fluid dispensing is common in medical applications, spanning from macro- to micro-scale. While controlled dispensing is crucial to suitable dosage and optimized therapy, it remains challenging to clinical application in many cases due to constrains in fluid properties, material selection and device design. Recent development in 3D printing technology has intrinsically revolutionized the fabrication of medical device with tunable properties to enable precise microfluidic control. In this talk, we will first present the novel disperser design made with this technique and demonstrate the state-of-the-art control in micro-flow achieved by tuning the interfacial tension and viscosity of the fluid and the surface roughness of the device. We will further propose the dispensing mechanism tailored to representative fluids in clinical use with typical viscosity on the order of 1 mPa.s. Finally, the potential applications in microfluidic drug loading implant will be explored.

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Date submitted: 01 Aug 2020

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