**Title：A novel approach of advanced laser and 3D printing technology in functionalized rapid-screening biomedical devices**

**Abstract：**

In recent years, the rise of nanotechnology have provided more possibilities for Lab-on-chip with rapid detection and high sensitivity in the field of biomedicine systems. At present, with the development of innovative processing technology in biomedical testing equipment, a facile of fast-screening biomedical device with excellent sensitivity and responsibility was achieved. Laser ablation technology is a non-contact processing that uses a laser beam with high energy density to focus on the surface of the material, so that the material could be dissolved and vaporized instantaneously to achieve the purpose of removal. The specific morphology and regions formed by focused laser beam irradiated accurately, which contributes to the high selectivity of material processing. In addition, laser ablation technology can directly create hydrophilic/hydrophobic characteristics for the surface of the area, which is an ideal and impressive behavior in biomedical device. Therefore, we improve the analysis efficiency of rapid-screening biomedical devices through the interaction of micro-nanostructures that integrate changes in laser-material and biomimetic properties. This topic introduces the fabrication and application of laser ablation and 3D printing technology in biomedical devices, including the design of bio-microfluidic systems and thin-film based biosensors, and their benefits in bimolecular analysis.