

## Optofluidic Waveguides Using Laminar Flow in Microfluidic Devices

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Optofluidics is a new field of technology to achieve the synergic effects by combining microfluidics and optics. Various optofluidic modules as building blocks are essential to construct the micro-total analysis systems. Especially, the light should be coupled and guided efficiently in the micro-total analysis systems. In this work, we demonstrated high-performance optofluidic waveguides using laminar flow in microfluidic device. The light could be efficiently guided along the laminar flow due to a total reflection by refractive index mismatches and optically smooth interfaces of constituting fluids. The physical properties of optofluidic waveguides could be reconfigurable simply by changing the flow conditions of the constituting fluids. Therefore, various detection demands in micro-total analysis systems could be satisfied in real time using the optofluidic waveguides.