

Robust Bi-directional Continuous Electrowetting Based on Metal-semiconductor (M-S) Diodes

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Abstract

"The goal of this work is to quantify the key design parameters such as the load capacity, actuation force, positioning repeatability, and reliability for droplet-based electrowetting actuators. Due to the fact that surface tension dominates gravity at both the mesoscale and microscale, droplet-based actuators can provide adequate force in manipulation tasks at those scales. Electrowetting, which uses an electric field to modulate the apparent surface tension of the liquid-ambient, provides a method to actuate droplets, which in turn transports the object carried by the droplet."

Bio

Qi is currently working as a mechanical design engineer at ASML. He received his PhD degree in mechanical engineering from USF in August 2016. His graduate research projects include wetting of liquid on smooth/rough surfaces as well as digital microfluidics and droplet based micro actuators. His thesis projects were focusing on the fundamental understanding and applications of electrowetting on dielectric (EWOD), which including using micro-liter sized droplets to move ridged objects.

