**Photopolymerization-Induced Phase Separation for the Fabrication of Electrically Tunable Liquid Crystal Microlens Arrays**

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Microlens arrays are key components for many optical systems and applications, however, their construction involves complicated processes, hence increasing the fabrication complexity and cost. Here, we demonstrate an electrically tunable liquid crystal (LC) microlens array using a simple, one-step fabrication method. The microlens array is created through photopolymerization-induced phase separation with a polymer/LC composite. The microlens array demonstrates both polarization-dependent and electrically tunable focusing and imaging properties. Based on its superior properties, the microlens array is further utilized for integral imaging applications, which demonstrates electrically tunable central depth plane. Such electrically tunable LC microlens arrays could find many potential applications including 3D displays, optical interconnects, etc.

**Short Bio:**

**Yanjun Liu** is currently an associate professor at Southern University of Science and Technology (SUSTech), China. He received his Ph.D. degree in photonics from Nanyang Technological University, Singapore. Before joining SUSTech, he was a research scientist in ASTAR, Singapore, and postdoctoral scholar in Penn State University and European Laboratory for Non-Linear Spectroscopy (LENS). His research interests include liquid crystal photonics, active plasmonics, and metamaterials, etc.