**One-step fabrication large area of microlens arrays**

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The microlens arrays (MLAs) are greatly used in medical lasers, optical fiber sensors, light-field cameras, biochemical systems, biological structures... Numerous methods such as: hot embossing, thermal reflow, droplet process, gray scale photolithography... are used for the microlens fabrication [1-4].

One step fabrication of low-cost concave microlens arrays on tot’hema tartrazine sensitized gelatin layer (TТSG) was developed. The layer is easy to prepare, elastic, biocompatible, thermally stable and nontoxic [5, 6]. MLAs were produced by direct diode-pumped solid state laser writing, operating at 473 nm. In addition, the microlens diameter, depth, and distance between two adjacent microlenses were controlled by changing the laser power, exposure time and dye concentration. The large area of hexagonally or square-packed microlenses was made for a short time. The concave MLA is suitable as a master mold for the further fabrication of convex arrays onto the polydimethylsiloxane (PDMS) or dental composite. The results were showed that the closely packed microlenses possess high-quality surface morphology, good optical and imaging properties. Using MLAs clear and uniform images were observed. Potentially applications MLAs are artificial compound eyes, Gabor superlens, optofluidic system... [7].

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