

### Fabrication of Tunable PDMS Nanovoid Arrays for Nanoscopic Analysis

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Microfluidic devices provide a lot of advantages for microscale synthesis and analysis, for example microreactor and micro separation system. For analysis of chemicals and/or biomolecules, various microfluidic systems with integrated micro- or nano-structures have been suggested. Especially, polydimethylsiloxane (PDMS) is attractive materials for microfluidic devices because of its simple molding process, spontaneous adhesion on the flat surfaces and inexpensiveness. In this work, PDMS nanovoid arrays were fabricated by assembly of colloids on polymer film and molding from hexagonally packed colloid arrays. Geometry of nanovoid can be controlled during embedding process by varying the degree of the embedment. PDMS can be elastically deformed without cracking and tearing. Therefore nanovoid size and shape can be tunable by applying mechanical strength. We expect that PDMS nanovoid arrays can be utilized as container for nanometer-sized analytes with different size.