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Laplace pressure induced droplet generation in micromold for synthesizing monodisperse microspheres. CHANG-HYUNG CHOI, Chungnam National University, JINKEE LEE, Sungkyunkwan University, CHANG-SOO LEE, Chungnam National University — Microspheres are widely used in applications such MEMS, chemical release systems, optical materials and various biological applications. Here, we report the new micromolding technique for synthesizing spherical monodisperse particles through surface-tension-induced flow. The spherical droplets were prepared using Laplace pressure difference, which is highly depending on geometries of the mold shape, without any pumping system to make flow. We calculated the minimum pressure difference to make the flow moves and form the droplets. It provides a synthetic tool for generating the microspheres using different reaction schemes; UV-polymerization, sol-gel reaction and colloidal assemblies. The monodisperse spherical particles, which are made of various materials, were successfully generated without any surfactant because each droplet can be separately positioned in mold patterns during solidification process.

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