

A simple method for making Lilliputian cups

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The technology for making ultrasmall containers - essential in a wide range of modern scientific research - has taken a giant step forward with new research by scientists in India.

In a report scheduled for the Nov. 16 issue of the ACS weekly *Journal of Physical Chemistry B*, researcher G. U. Kulkarni and colleagues report "a simple and straightforward" method for producing metal cups with a capacity measured in femtoliters. To show that the cups work as nanocontainers, Kulkarni's group filled some with fluorescent biomarkers and metal nanoparticles.

A femtoliter, which is one quadrillionth of a liter (1.1 quarts), may seem uselessly small; however, Kulkarni describes a growing need for ultrasmall containers in scientific research. Uses for such small vials range from holding nanoparticles to serving as nano inkwells for a technology termed "dip pen nanolithography."

The new method of producing the tiny cups involves blasting melts (viscous solutions) with a laser beam in a vacuum to produce droplets of molten metal that form into cuplike structures.

Although scientists previously have made even smaller containers, including some with a capacity of a zepto liter - one million times smaller than a femtoliter - the new method of producing the tiny cups has advantages, including simplicity, over previous methods, according to the researchers.

Source: American Chemical Society

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