Wafer-Level Micro-Glass Blowing

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BACKGROUND

Large scale confinement chambers have been created in the past using traditional glass-blowing techniques. However, conventional glass-blowing can only be used to create large components and requires the components to be made one at a time. Micro-glass spheres have previously been fabricated by letting glass particles fall through a temperature-controlled drop tower. While it is possible to create hollow spheres by introducing a blowing agent in the glass, these micro-spheres are not attached to a substrate and are therefore difficult to integrate with micro-machined components on a wafer.

TECHNOLOGY DESCRIPTION

This invention describes a process for shaping glass on a wafer scale and how multiple micro-glass spheres can be formed simultaneously on a silicon substrate. These wafer attached spheres allow for integration with conventional micro-fabricated components and can be filled with any type of gas in post-fabrication.

APPLICATIONS

Microscopic gas confinement chambers, micro-lenses, optical switches, laser fusion targets, magnetic shielding, medication capsules, lab-on-a-chip, drug delivery systems

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	7,694,531	04/13/2010	2006-176

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OTHER INFORMATION

CATEGORIZED AS

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