Technology Offer

Fabrication of fluid filled metal microarchitectures - Ref.-No.: 0041-6492-WT

Advantages

- Ability to create true 3D metal microarchitectures, surpassing the limitations of traditional 2D and polymer-based 3D structures.
- Unique capability to encapsulate liquids within metal microstructures, a feature not achievable with conventional microfabrication techniques.
- Enhanced structural integrity and functionality compared to polymer-based microarchitectures.
- Flexibility in metal and microstructure tunability, allowing for diverse applications.
- Advanced control over the deposition process, enabling precise and complex geometries.

Applications

- Drug delivery systems with controlled release mechanisms.
- Microelectromechanical systems (MEMS) with integrated fluidic components.
- Advanced sensors for damage detection and impact protection.
- Microscale vessels and containers for chemical and biological applications.
- Customizable microfabrication for research and industrial purposes.

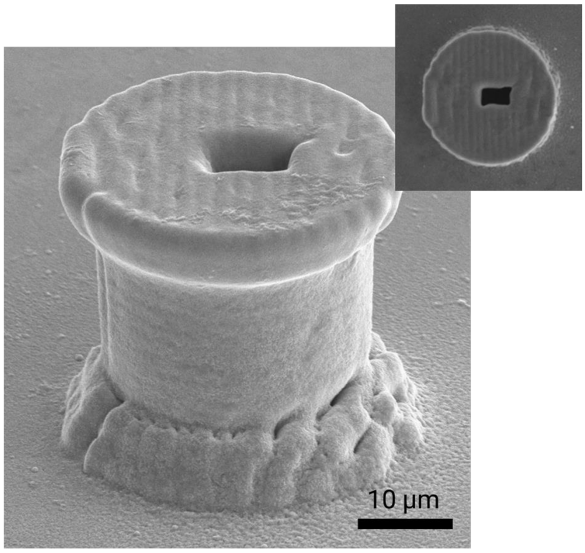

Fig. 1: Microvessel with a hole which can be filled with different liquids

Description

LEL technology stands out for its precision in fabricating 3D metal microarchitectures with intricate geometries and the ability to seamlessly integrate liquids. It utilizes a voxel-by-voxel deposition method, which allows for the creation of complex shapes with submicron resolution. The process

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involves optimizing variables like deposition voltage, air pressure, and orifice diameter. A significant advantage of LEL is its capacity to alter the pH and composition of the supporting electrolyte solution, enabling the deposition of different metals and the encapsulation of various liquids, including bioactive compounds.

Patent Information

EP, PCT

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