

FABRICATION OF MICRO/NANOWIRE ARRAYS VIA TEMPLATE-ASSISTED HOT EMBOSSING

Tech ID: 34675 / UC Case 2026-132-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

Creating complex structures at extremely small scales is essential for advancing fields ranging from electronics to medicine. Researchers at UC Berkeley have developed a template-assisted hot embossing method to fabricate arrays of architected micro-scale and nano-scale structures.

SUGGESTED USES

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Advanced Semiconductor Manufacturing: Creating precise patterns for next-generation electronic components and integrated circuits.

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Optical Metasurfaces: Fabricating nano-scale structures for lenses, filters, and other light-manipulating surfaces used in imaging and communications.

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Biomedical Engineering: Developing textured surfaces for cell growth scaffolds, drug delivery systems, or micro-needle arrays.

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Structural Materials: Producing lightweight, high-strength lattice structures or architected materials with unique mechanical properties.

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Energy Storage: Manufacturing high-surface-area electrodes for advanced batteries and supercapacitors to improve charging rates and capacity.

ADVANTAGES

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High Precision: Delivers exceptional fidelity in replicating micro-scale and nano-scale features from a master template.

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Scalability: The approach is well-suited for producing large-area arrays of structures efficiently.

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Material Versatility: Can be applied to a wide range of solid materials that can be softened through temperature control.

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CONTACT

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INVENTORS

» Al Balushi, Zakaria Y.

OTHER INFORMATION

CATEGORIZED AS

- » **Engineering**
 - » Engineering
- » **Materials & Chemicals**
 - » Nanomaterials
 - » Other
- » **Semiconductors**
 - » Design and Fabrication
 - » Processing and Production

RELATED CASES

2026-132-0

Structural Complexity: Enables the creation of "architected" structures that are difficult to achieve with traditional subtractive manufacturing or standard lithography.

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Cost-Effective Fabrication: Reduces the need for expensive high-vacuum equipment or complex chemical etching processes typically used in nano-fabrication.

RELATED MATERIALS

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

▶ [Method For The Synthesis Of Gallium Nitride With N2 Gas At Room Temperature](#)



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