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Guided Template Based Electrokinetic Microassembly (TEA)

Tech ID: 32478 / UC Case 2020-661-0

BRIEF DESCRIPTION

Researchers at the University of California, Irvine have developed a guided electrokinetic assembly technique that utilizes dielectrophoretic and electroosmotic forces for micro- and nanomanufacturing. This technique provides a new way for assembling microelectronics and living cells for tissue engineering applications.

SUGGESTED USES

- ·Assembly of living cells and organisms for tissue engineering applications
- ·Carbon nanotube assembly
- ·Micropart assembly
- ·Nano- and micromanufacturing

FEATURES/BENEFITS

- ·Spontaneous and quick assembly of both micro and nano parts
- ·Less expensive than many pick-and-place methods

TECHNOLOGY DESCRIPTION

Microdevices are used for a variety of applications ranging from tissue engineering to microelectronics to drug discovery. Currently, their assembly relies on slow serial steps of production such as pick-and-place or self-assembly operations. However, these methods can be expensive, time consuming, and may not work for both micro- and nanocomponents. The current microdevice assembly technology can be expensive and slow.

The researchers at the University of California, Irvine have developed a method for guided assembly, which uses an array of patterned microelectrodes to dielectrophoretically and electroosmotically assemble microscopically in aqueous solution. It combines the speed of self-assembly with the precision of directed assembly techniques in a parallel manner.

STATE OF DEVELOPMENT

Device prototype in progress.

PATENT STATUS

Country Type Number Dated Case

CONTACT

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INVENTORS

» Kulinsky, Lawrence

OTHER INFORMATION

CATEGORIZED AS

- » Nanotechnology
 - » Electronics
 - » NanoBio
 - >> Tools and Devices
- » Engineering
 - Nobotics and Automation

RELATED CASES

2020-661-0

United States Of America Issued Patent 11,840,769 12/12/2023 2020-661

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Dissolvable Calcium Alginate Microfibers via Immersed Microfluidic Spinning
- ▶ Stepwise Fabrication of Conductive Carbon Nanotube Bridges via Dielectrophoresis

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