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**
  - » Robotics 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
- Polymer Based High Surface Area Multi-Layered Three-Dimensional Structures
- Stepwise Fabrication of Conductive Carbon Nanotube Bridges via Dielectrophoresis

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