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## Fabricating Crystallinity Unique Carbon Nanowires (~5nm) with Ultrahigh Electrical Conductivity

Tech ID: 32499 / UC Case 2019-923-0

### BRIEF DESCRIPTION

UCI engineers have designed a new protocol for the synthesis of technology materials that uses electrospinning to draw polymers into ~5nm carbon nanowires.

### SUGGESTED USES

- Creation of ~5nm carbon nanowires
- Scalable nanofabrication

### FEATURES/BENEFITS

- This new method can synthesize 5nm wires which can then be integrated onto desired substrates
- Scalability
- Not wavelength limited

### TECHNOLOGY DESCRIPTION

The advancement of technology has been accompanied by a steady decrease in the size of materials used. Unfortunately, current methods are unable to produce materials such as carbon nanowires under 5nm including lithography. A new synthesis method developed by UCI engineers uses electric force to draw polymer solutions to ~5nm fiber diameters (electrospinning), allowing a new step in technology miniaturization.

### STATE OF DEVELOPMENT

Technique has been developed, wires created and tested for conductivity

### PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,846,042	12/19/2023	2019-923

### CONTACT

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### INVENTORS

» Madou, Marc J.

### OTHER INFORMATION

### CATEGORIZED AS

- » **Materials & Chemicals**
  - » Nanomaterials
  - » Polymers
- » **Nanotechnology**
  - » Materials

### RELATED CASES

2019-923-0

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ LaserPack: A burstable liquid storage package for biological material storage and valve substitution
- ▶ FlexThrough: a recirculation mechanism for point of care, centrifugal disk-based microfluidic devices
- ▶ Polymer Based High Surface Area Multi-Layered Three-Dimensional Structures
- ▶ Low-Voltage Near-Field Electrospinning Enables Controlled Continuous Patterning of Nanofibers on 2D and 3D Substrates
- ▶ Flexthrough: A Recirculation Mechanism In Point Of Care CD Microfluidic Using Elastic Membrane

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