Chemical Vapor Deposition Growth of the Large Single Crystalline Domains of Monolayer and Bilayer

Tech ID: 24567 / UC Case 2013-457-0

INNOVATION

Professor Duan and colleagues have devised a nucleation controlled chemical vapor deposition (CVD) process on copper foils to grow large and highly crystalline domains of single and bilayer graphene. Graphene is expected to make a large impact in the field of microelectronics owing to its remarkably high room temperature carrier mobility. However graphene transistors produced using CVD do not meet the predicted theoretical electronic properties due to the failure to grow single crystalline material. This method allows for the growth of monolayer crystals approaching millimeter lateral dimensions with highly uniform electronic properties closely approaching the theoretically predicted properties of graphene. The bilayer graphene grown via this method is also large, uniform and exhibits ordered AB-layered stacking. The technology has wide applications for consumer electronics and touch screen displays.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,370,774	08/06/2019	2013-457

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INVENTORS

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OTHER INFORMATION

KEYWORDS

Chemical vapor deposition, graphene, transistors, touch screens

CATEGORIZED AS

- **Optics and Photonics**
  - All Optics and Photonics
- **Materials & Chemicals**
  - Chemicals
  - Composites
  - Nanomaterials
  - Other
  - Polymers
  - Thin Films
- **Nanotechnology**
  - Electronics
  - Materials

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