



## Seed-Mediated Growth Of Patterned Graphene Nanoribbon Arrays

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### The Invention

Graphene nanoribbon arrays, methods of growing graphene nanoribbon arrays, and electronic and photonic devices incorporating the graphene nanoribbon arrays are provided. The graphene nanoribbons in the arrays are formed using a seed-mediated, bottom-up, chemical vapor deposition (CVD) technique in which the (001) facet of a semiconductor substrate and the orientation of the seed particles on the substrate are used to orient the graphene nanoribbon crystals preferentially along a single [110] direction of the substrate.

### Additional Information

#### For More Information About the Inventors

- [Michael Arnold](#)

#### Tech Fields

- [Semiconductors & Integrated Circuits : Components & materials](#)

For current licensing status, please contact Jeanine Burmania at [jeanine@warf.org](mailto:jeanine@warf.org) or 608-960-9846