



TWO-DIMENSIONAL CARBON NANOTUBE LIQUID CRYSTAL FILMS FOR WAFER-SCALE ELECTRONICS

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Inventors: Michael Arnold, Katherine Jinkins, Padma Gopalan

The Invention

UW researchers have now demonstrated that nanotubes collected at a liquid/liquid interface self-organize to form two-dimensional (2D) nematic liquid crystals that globally align with flow. The 2D liquid crystal assemblies are transferred and deposited onto substrates in a continuous process, generating dense arrays of nanotubes that are highly aligned, ideal for electronics. The excellent alignment and wafer-scale uniformity of the transferred assemblies enable FETs with exceptional on-state current density.

Applications

Thin film electronics
Biosensors
RF electronics
Logic electronics
Microprocessors

Key Benefits

Align array carbon nanotube FETs are projected to have improved power efficiency, electrostatic gate control, and switching speed as compared to conventional semiconductors FETs

Additional Information

For More Information About the Inventors

- [Michael Arnold](#)
- [Padma Gopalan](#)

Publications

- [Read a news story about this technology.](#)

Tech Fields

- [Semiconductors & Integrated Circuits : Design & fabrication](#)

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846