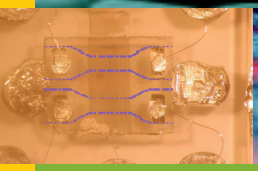
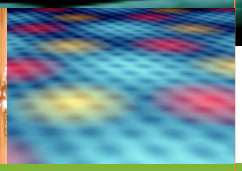
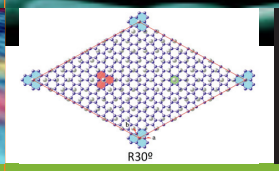
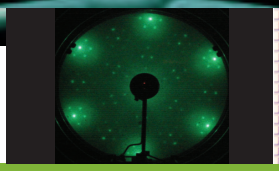
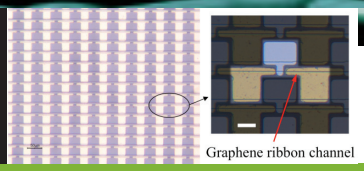
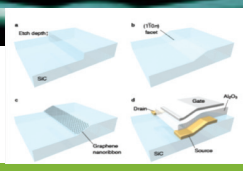
Georgia Tech

Epitaxial Graphene — Carbon-Based Electronics for the 21st Century

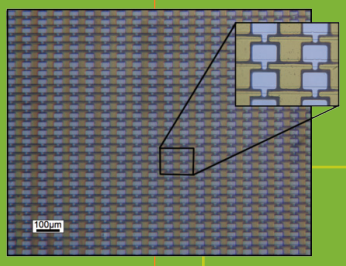


GRAPHENE

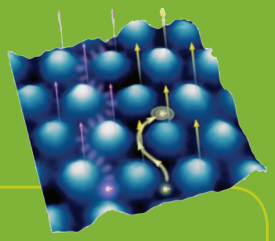
Georgia Institute of Technology

The Georgia Tech MRSEC focuses on developing Epitaxial Graphene on single crystal silicon carbide substrates for post-CMOS electronics applications.

The Center is dedicated to understanding all aspects of this new material including, growth, basic physics and materials issues, electronic properties, and device development. To accomplish its mission, the Center has organized a world renowned interdisciplinary team of physicists, chemists, electrical, chemical and materials engineers. Their goal is to not only build the foundations of a new electronic industry but to train the skilled workforce necessary for its development. GT works closely with its partnering institutions in the MRSEC: University of California, Riverside; University of California, Berkeley; and University of Michigan.

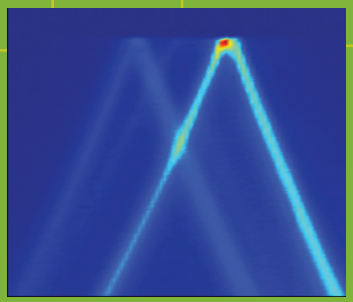


HIGHLIGHTS . . .



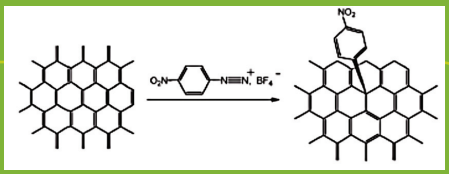
10,000 epitaxial graphene FETs on SiC produced using conventional lithography.

Novel two-dimensional materials properties discovered in new graphene allotrope.

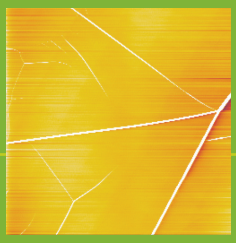


DIRECTOR: Dennis Hess
http://www.mrsec.gatech.edu

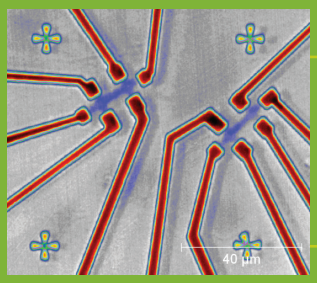
RESEARCH FUNDAMENTALS . . .



An important research focus is to understand and control graphene's electronics properties by both chemical and structural changes



High quality graphene is needed for the production of large scale electronic devices



New device applications that take advantage of graphene's unique properties are being explored.

"Researchers at Georgia Tech have pioneered the development of high quality epitaxial graphene for carbon-based electronics. The ability to form large area graphene layers directly on SiC substrates offers a simple, reliable path to the large scale production of graphene devices and integrated circuits that is compatible with current silicon-based technology."

Dennis Hess, Director
MRSEC

GT MRSEC EQUIPS A DIVERSE POPULATION OF STUDENTS WITH TECHNICAL AND PROFESSIONAL TOOLS

- **Epitaxial Graphene Seminar Course** for graduate and senior undergraduate students.
- **Weekly Journal Club** for keeping students at the forefront of global graphene research.
- **Science and Technology of EG** - an annual international symposium that promotes recent developments and emerging technologies in EG.
- **Research Experience for Undergraduates** during both summer and academic year.
- **Research Experience for Teachers** during summer at the Center's research laboratories.
- **Partnership for Research and Education** in Materials with the Atlanta University Center.
- **Graphene Times** – a web based news and commentary site (graphenetimes.com) that serves the scientific community and provides the reader the latest news and research activities

OUTREACH

More information about the workshops, internships, partnerships, and educational opportunities are available at: http://www.mrsec.gatech.edu

Materials Research Science and Engineering Center

NSF