



# Press Release



October 2009

## SMI Announces AF Phase I STTR Award to Develop Graphene Production Tool

Structured Materials Industries, Inc. (SMI), announced that it has received STTR Phase I funding from the Air Force to develop a flexible graphene film deposition tool, for both research and production applications. SMI's graphene tool is based on thermal decomposition of silicon carbide. The tool will be high vacuum compatible, with provisions for a wide range of gas inputs, enabling gas phase doping of graphene, or combining the graphene process with other techniques such as chemical vapor deposition (CVD). The proposed tool will also have full provisions for in-situ monitoring during processing, including optical, pyrometric and electron diffraction techniques.

SMI is working with Cornell University researchers in this STTR Project, who provide tremendous expertise in graphene film growth. In its most elemental form, graphene consists of a single layer of carbon atoms in a hexagonal array. Since first isolated in 2004, scientists have been rapidly documenting the unusual physical and electrical properties of graphene, and the many potential commercial applications of this truly unique material. Many applications for graphene are anticipated, ranging from high speed transistors to spintronic devices to gas detectors to radiation detectors (THz through infrared to optical) to MEMS and NEMS devices. Graphene also offers the potential to combine these functions into a single device. Structured Materials Industries and our University partners intend to develop other graphene based products, along with the materials technology and the commercial film deposition tools for graphene.

Structured Materials Industries, Incorporated is a leader in advanced and custom Chemical Vapor Deposition (CVD) tool and related technologies. SMI offers for sale: systems, components, materials, and process development services. SMI has an in-house applications laboratory featuring multi-reactor deposition systems and analytic capabilities, has developed a range of strategic partnerships to develop and implement MOCVD technology and looks forward to continuing to grow and expand upon mutually advantageous relationships.

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