Improved C-C Composites with Added Heat Shielding

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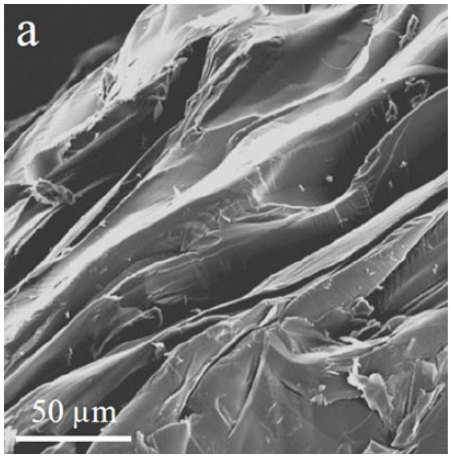

Graphene-anthracene

Technology Summary

An improvement in the synthesis of carbon-carbon (C-C) composites has been made. Instead of using carbon fiber for reinforcing and control of macroscale properties, this technology uses the matrix for self-reinforcement. Penn State researchers have improved the properties of C-C composites by using carbon allotropes as additives to control and direct the microstructural evolution of the C-C composite during its fabrication. As a result, extensive pre-fabrication of filaments, yarns, and weaves are bypassed. The technology allows for the properties of graphene and nanotubes to be magnified in non-graphitizing matrices based on polymeric resins which will increase strength and conductivity of C-C composites.

Application & Market Utility

Carbon-carbon (C-C) are important engineering materials, because they can perform structurally at extreme temperatures and have superior thermal shock, toughness, ablation, and high-speed friction properties. Accordingly, C-C composites are particularly important in aerospace and mobile applications. Specifically, C-C composites can be used for engine exhaust parts, aircraft sections and leading edge components. Vehicle parts include drive-shafts, panels and brackets.

Next Steps

Seeking licensing opportunities and research collaboration.

TECHNOLOGY READINESS LEVEL 1-3

Seeking

Investment | Licensing | Research

Keywords

- carbon-carbon composite
- engineering material

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