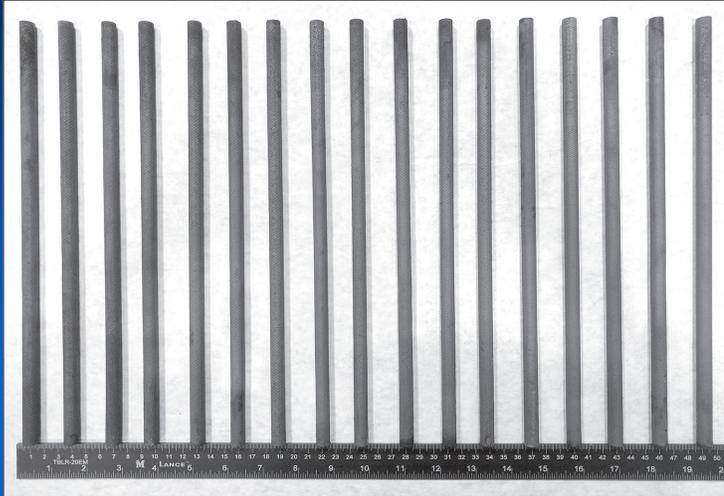


SiGA™ COMPOSITE CAPABILITIES

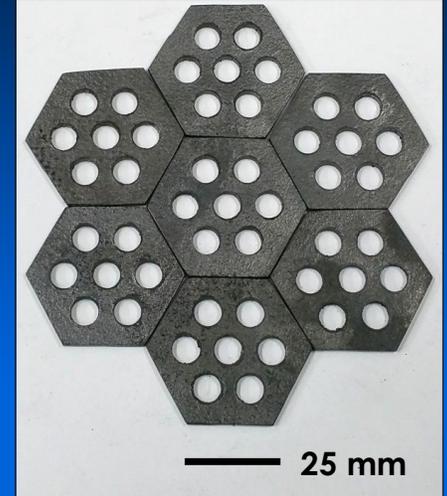
General Atomics fabricates SiGA™ silicon carbide composites in custom geometries with tailored performance to meet customer requirements



Polished tube



Set of ~12" long SiGA™ tubes



Plates with integral hole pattern



Plate with complex curvature



Cladding Assembly

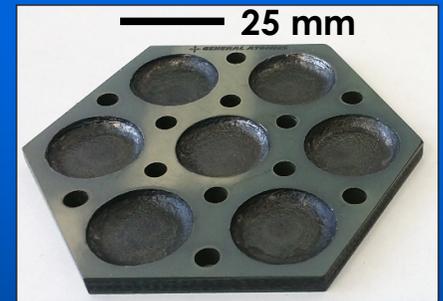


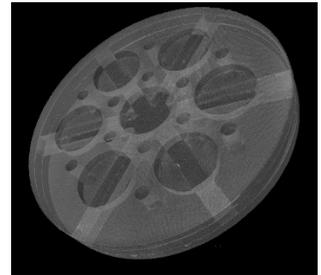
Plate with blind hole pattern

- Engineered designs in planar, tubular, and custom geometries
- Complex structures with high-purity joining methods
- Irradiation-resistant and oxidation-resistant formulations
- Extensive in-house characterization techniques
- Retains strength to beyond 1600°C

SiGA™ COMPOSITE CAPABILITIES

VERSATILE AND CUSTOMIZABLE FABRICATION

- Chemical Vapor Infiltration and Hot-Press fabrication processes
- Reduced cost due to near net-shape processing
- Tough and impermeable multi-layered structures
- Tube diameters from 5 mm to >50 mm; tube lengths up to 1 m
- Hot-pressed structures with thickness >25 mm
- Blind and thru-hole features without machining
- In-house fiber preforming for custom geometries

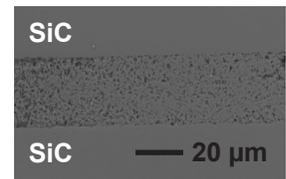


Hot-pressed multi-layer
SiGA™ structure

SiGA™ JOINING

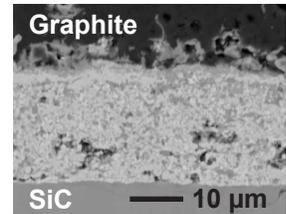
- Joining of SiC to SiC, and SiC to dissimilar materials
- Provides hermetic sealing with strength retention at high temperature and neutron fluence
- Joining parts in a variety of configurations
- Mechanical connections allow for detachment

HSiC joint



SiC-to-SiC bonding

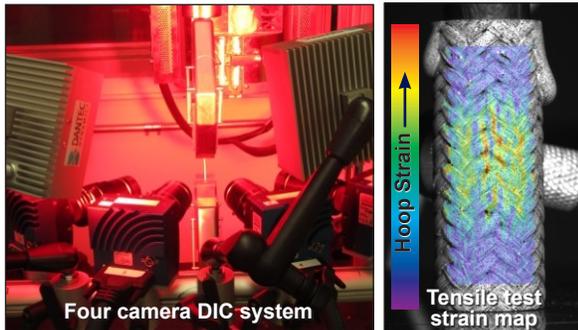
MSiC joint



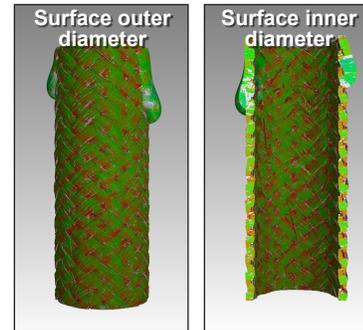
SiC-to-graphite bonding

ADVANCED COMPOSITE CHARACTERIZATION TECHNIQUES

- Measured mechanical strengths up to 500 MPa at elevated temperatures
- Unirradiated thermal conductivity up to 30 W/m-K
- Advanced analysis techniques include digital image correlation and acoustic emission
- Non-Destructive X-Ray Computed Tomography (XCT) to measure dimensional tolerances, microstructure, and nominal/actual comparisons at up to 3 μm resolution



Full-field strain measurements using
Digital Image Correlation (DIC)



Wall thickness measurement using XCT

Ron S. Faibish, PhD, Senior Director of Business Development

Ph: (202) 713-8333 | E: Ron.Faibish@ga.com

GENERAL ATOMICS 3550 General Atomics Court, San Diego, CA 92121, USA WWW.GA.COM