The Energy Group at General Atomics (GA) pioneers advanced technologies with world-changing potential. We have been at the cutting edge of energy innovation since the dawn of the atomic age – more than 60 years. GA’s scientists and engineers are advancing the frontier of scientific discovery across a comprehensive array of key energy technologies, and helping meet growing global demands through safe, sustainable, and economical solutions.
MAGNETIC FUSION ENERGY

GA is a leader in magnetic fusion research with more than 50 years of achievement. Our efforts have led to contributions in fusion energy through practical research, theory, and industry-leading computer simulations and high-performance computing applications. GA operates the largest magnetic fusion research facility in the U.S., the DIII-D National Fusion Facility, for the U.S. Department of Energy (DOE). GA is a vital partner in ITER and is manufacturing major components and key diagnostics for this worldwide initiative, most importantly the Central Solenoid, which will be the world’s largest pulsed superconducting electromagnet.

INERTIAL FUSION TECHNOLOGY

For more than 25 years, GA has supported the National Nuclear Security Administration’s research in inertial confinement fusion and high-energy-density physics by supplying critical components, diagnostics, and other associated equipment. GA works closely with DOE national laboratories to develop innovative solutions to the physics challenges presented by researchers. These programs have made GA an innovator in microfabrication, micromachining, microprinting, advanced coatings, aerogels, and related technologies.

NUCLEAR TECHNOLOGIES & MATERIALS

GA’s TRIGA research reactors have a flawless record of inherently safe operations reaching back to 1958. Over the years, GA has been at the forefront of developing TRISO fuel, processes to remove fission products, and helium-cooled reactor technologies. For the next generation, GA is focused on the innovative Energy Multiplier Module (EM²), an advanced modular gas-cooled design that addresses the core challenges facing nuclear energy. GA is leveraging EM² research for DOE’s Accident Tolerant Fuel program to develop composite cladding materials that offer a significantly higher safety margin than current metal alloys.

Nuclear fuel rod cladding made from SiGA™ silicon-carbide composite can withstand extreme conditions well beyond that of current metal fuel rods

The innovative EM² design addresses the four core challenges facing nuclear energy – safety, waste, cost, and non-proliferation

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