

Impactful Research Support

Spectral Energies provides research support with leading edge technology for gas turbine propulsion, hypersonics, thermal management, Aero-Acoustics/Aero-Optics, diagnostics, sensors and imaging. With a dedicated team of experts, we help overcome your challenges with in-depth engineering analysis and physical interpretation with varied approaches customized to your specific needs.

Contact us today to learn how Spectral Energies can power your mission.



Spectral Energies' new state-of-the art research and administrative facility, located in the heart of the Midwest.

Spectral Energies

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Spectral Energies

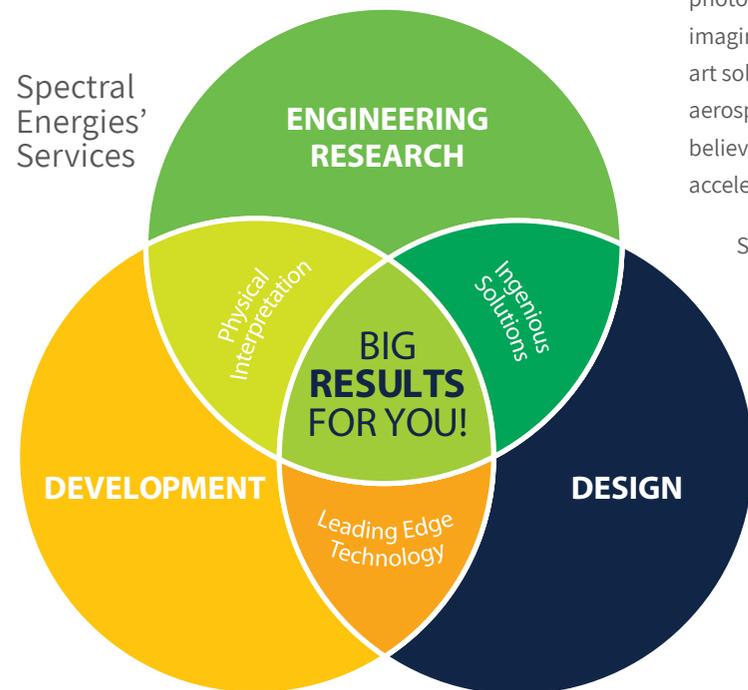


Ingenious Solutions – **BIG RESULTS.**

Spectral Energies is a true science and technology pioneer, providing cutting-edge diagnostics, engineering, research and design, and numerical/data analytical tools for aerospace components/sub-systems, energy and biomedical sectors.

At Spectral Energies, our reason for being is truly you, the client.

While providing innovative and cost effective solutions for your needs, we always remain cognizant of your mission and objectives. Our reward comes from your satisfaction and success.



Spectral Energies also assists with development, transition and commercialization. Great science, advanced technology and their application are the hallmarks of our corporate values and culture. Our team of scientists and engineers power your mission with unrivaled technologies and vast experience, in areas such as:

- Gas Turbine Propulsion/Power
- Sensors/Diagnostics
- Hypersonics
- Aero-Optics
- Plasma Physics
- Wind Tunnel Research
- Aero-Acoustics
- Material Research
- Data Analytical Tools
- Modeling and Simulation

Services include engineering analysis, physical interpretation and research support with leading edge technology in photonics, active sensing and high-speed multi-dimensional imaging. We also design and develop advanced, state-of-the-art solutions for your specific needs in optics, lasers, sensors, aerospace science and engineering. At Spectral Energies, we believe this combination of research and design is essential for accelerating solutions to current and future challenges.

Spectral Energies has fielded commercial instruments for gas sensing, chemical speciation, thermometry, pressure, and velocimetry for a wide range of applications. Ongoing initiatives include component-level engineering (e.g., laser sources and custom opto-mechanics), as well as system-level instrument integration, training, consulting, and application.

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State-of-the-Art Design and Development

Spectral Energies offers several turn-key products for research in thermal-fluids, propulsion, combustion, chemical engineering, plasma science, and materials science. These products include kHz–MHz-rate burst-mode MOPA source lasers to replace high-power 10-Hz Nd:YAG systems as well as complete diagnostic systems such as portable coherent anti-Stokes Raman scattering, simultaneous kHz-rate planar laser-induced fluorescence and particle image velocimetry, and hyperspectral diode-laser absorption sensors.

1 Burst-Mode MOPA Laser Systems

Spectral Energies' state-of-the-art burst-mode Master Oscillator Power Amplifier (MOPA) lasers can directly replace 10-Hz Nd:YAG lasers for use in kHz to MHz rate 2-D and 3-D fluorescence, Raman, velocity, and particle incandescence imaging.

2 Hyperspectral Absorption Sensors

Spectral Energies' hyperspectral absorption sensor can be used to measure gas properties (T, P, Xi) with sufficient bandwidth to resolve the dynamics present in real-world devices.

3 High-Speed PLIF & PIV

Spectral Energies offers commercially available high-speed planar laser-induced fluorescence (PLIF) and particle image velocimetry (PIV) systems, including lasers, cameras, breadboards, software, electronics, and optics customized for your test conditions.

4 Plasma Anometers

Custom designed for gas turbine propulsion systems and wind tunnel applications, our plasma anometers provide velocity, pressure and temperature measurements.

For additional products and services, visit www.SpectralEnergies.com.

