

Unmanned Aerial Systems Research Center

From Science to Solution

The Unmanned Aerial Systems Research Center at Oak Ridge National Laboratory connects industry with world-class research tools and capabilities to translate scientific breakthroughs into commercialized applications. By advancing the engineering and integration of technology subsystems, UASRC maximizes the power of unmanned aerial systems (UAS) to design and develop innovative, transformative solutions that improve safety, productivity, and use.

UASRC focuses on UAS performance and durability in a variety of markets:

- **Environment**—The ability to reach remote areas and repeatedly conduct rapid and comprehensive inspections.
- **Energy**—The exploration of future resources and acquisition of data for accurate life-cycle assessment.
- **Infrastructure**—The remote inspection, monitoring, and assessment of man-made structures.
- **Humanitarian**—The ability to quickly analyze disaster areas to expedite the deployment of first-responders and activation of emergency management strategies.
- **Security**—The tactical surveillance and real-time monitoring of high-risk areas and hazardous conditions.
- **Materials Science**—Characterize material integrity to design and test new processing methods.
- **Navigation and Communications**—Enhance system integration to advance navigation platforms and communications networks.
- **Power Electronics**—Design scalable electronic systems to increase efficiency and optimize in-flight charging capabilities.
- **Propulsion**—Utilize advanced platform technology to reduce system stress and improve operating performance.
- **Sensors**—Expand sensor capabilities to enable greater and more precise measurements and data collection.

By leveraging ORNL's diverse capabilities and state-of-the-art facilities, UASRC can identify and respond to real-world challenges at an accelerated pace:

- **Computational Science and Data Analytics**—Quickly capture, analyze, and steward large volumes of data.
- **Energy Storage**—Use simulations to identify battery limitations and develop alternative technologies.

Working with the UASRC

UASRC was established to provide innovative, technology-based applications for the marketplace. ORNL offers industry a range of mechanisms to partner with UASRC:

- Cooperative Research and Development Agreement
- Technology Licensing Agreement
- Small Business Innovation Research
- Small Business Technology Transfer
- Small Business Voucher

Contact

Richard Lusk
Director
865-574-8864
luskrm@ornl.gov

Peter Fuhr
Technical Director
865-574-8529
fuhrpl@ornl.gov

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US Department of Energy



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