OAK RIDGE NATIONAL LABORATORY

ORNL Partnerships: Open for Collaboration

Oak Ridge National Laboratory (ORNL) actively seeks and engages in industrial and technology transfer partnerships that increase the Laboratory's economic impact, accelerate deployment of ORNL-developed technologies, and strengthen innovation ecosystems regionally and nationally.

Industry Engagement

Each year ORNL begins new engagements with more than 100 companies through partnering mechanisms that facilitate access to unique lab facilities, expertise, and intellectual property, helping these companies meet their R&D needs and making them more competitive in the marketplace.

Economic Development Partnerships

ORNL encourages industry and economic development partnerships through membership in consortia, participation in entrepreneurship programs, and active engagement with regional economic development partners. More than 20 start-ups have been formed over the past 5 years based on ORNL technologies.

ORNL, with partners Tennessee Valley Authority and Tennessee Department of Economic and Community Development, in 2022 received our first-ever award from the Federal Laboratory Consortium for State and Local Economic Development. Our partnership resulted in a record $2.3 billion investment by Ultium Cells to build a battery cell manufacturing plant in Spring Hill, Tennessee. The partners are supporting development of batteries for electric vehicles (EVs) offering longer ranges and faster recharge speeds and made with cleaner, more sustainable materials. Since 2017, an estimated $8.2 billion has been invested in the region for EV companies, their suppliers, and battery manufacturing, and more than 4,000 new EV-related jobs have been created. RevV!, an ORNL voucher program funded by the state that connects companies to ORNL scientists, has been key to the partners' success.

Source: Ultium Cells and Gresham Smith

163 Active licenses for ORNL-developed technologies

199 Active CRADAs with industry

123 Active industry-funded R&D projects

240 Invention disclosures annually (with 75 patents issued per year)

232 R&D 100 Awards, more than any other national laboratory

"We strengthen ORNL's scientific and technical impact through leadership in technology transfer, technology-driven economic development, and strategic engagement with industry."

Parans Paranthaman, ***Battelle Distinguished Inventor, National Academy of Inventors Fellow, and ORNL Corporate Fellow***

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Partnering Mechanisms

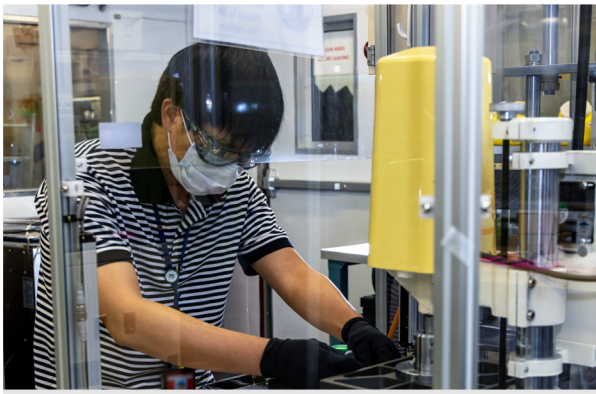
ORNL engages industry through a variety of partnering mechanisms that are designed to cultivate regional and national innovation, speed ORNL-developed technologies to market, and positively impact the economy.

User Facilities—ORNL operates nine scientific user facilities representing unique US Department of Energy resources serving thousands of research users each year, including many from industry. The centers include the Spallation Neutron Source, High Flux Isotope Reactor, Center for Nanophase Materials Sciences, Oak Ridge Leadership Computing Facility, National Transportation Research Center, Buildings Technology Research and Integration Center, Manufacturing Demonstration Facility, Carbon Fiber Technology Facility, and Center for Structural Molecular Biology.

Cooperative Research and Development Agreements—CRADAs allow companies and academic institutions to collaborate with ORNL through jointly sponsored R&D efforts leveraging the unique capabilities of the partners. CRADA partners may negotiate exclusive licenses for the resulting inventions.

Strategic Partnership Projects—Industry directly funds R&D in areas where ORNL has unique capabilities. ORNL SPPs provide staff with increased awareness of technical challenges in industry and provide industry with access to critical R&D capabilities that would otherwise not be available.

Technology Licensing—Each year an average of more than 20 ORNL-developed technologies are deployed in the marketplace through royalty-bearing licenses with industry. Recently licensed technologies include a method to optimize artificial intelligence (AI) neural networks, lithium-ion battery technologies, additive manufacturing technologies, systems for grid-scale energy storage, a suite of cybersecurity technologies, and a drug delivery system to combat COVID-19.



Jianlin Li, Energy Storage and Conversion Manufacturing group leader, works on an electrode punching machine at ORNL's Battery Manufacturing Facility. The pattern design being implemented enables improved battery safety upon impact.

Highlights

Technology Innovation Program—ORNL invests a substantial portion of its royalty income to mature competitively selected ORNL technologies, bringing them closer to the marketplace and bridging research and commercialization.

Techstars—ORNL is supporting industries of the future in this collaboration with the University of Tennessee and Tennessee Valley Authority to help aspiring entrepreneurs and early-stage innovators scale their businesses. Young innovators get access to funding, mentorship, networking opportunities, and membership in the innovation community.

Partners from start-ups to Fortune 500s are commercializing ORNL technologies, including:

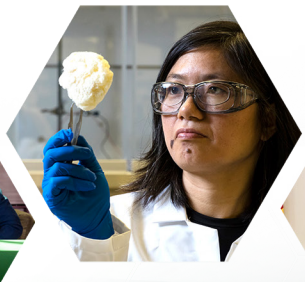
- Biological cell sampling analysis technology offering single-cell resolution at high speeds
- 3D-printing method for safe, cost-competitive nuclear reactors components made from silicon carbide
- AI software for real-time monitoring of additive manufacturing
- Solvent-free battery component production using radiation curing for shorter processing time, lower costs, and reduced emissions
- Electric vehicle wireless charging technology delivering the world's highest power levels in the smallest package
- Rare-earth element chemical separation technology for clean energy and defense applications
- Electrocatalyst that enables formation of higher-weight hydrocarbons for gasoline, diesel, and jet fuel

CONTACT:

Michael Paulus
Director
Technology Transfer

paulusmj@ornl.gov
865-574-1051

One Bethel Valley Road,
Oak Ridge, TN 37830



www.ornl.gov/partnerships

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January 2022