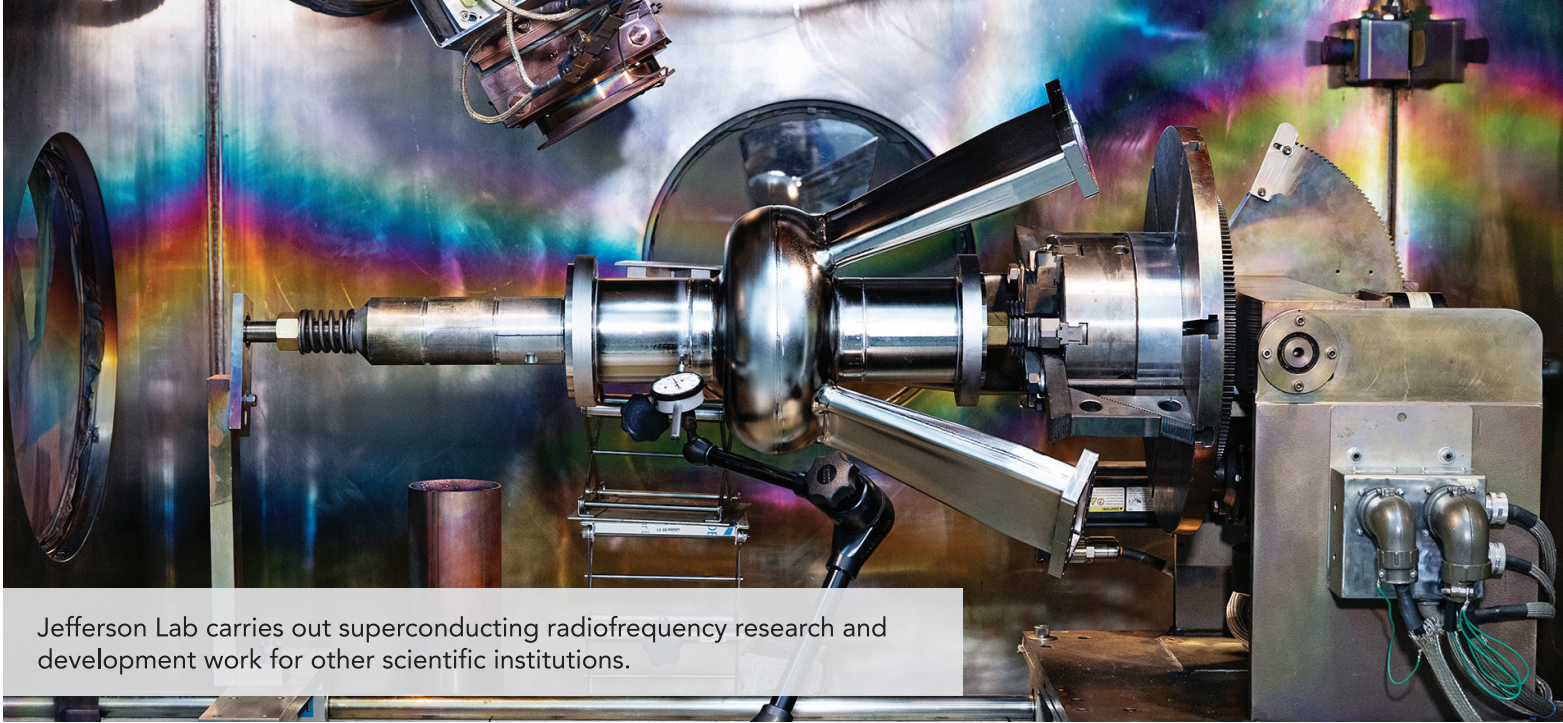


MAKING AN IMPACT

Facilitating Scientific Discovery and Mentoring
Tomorrow's Innovators



Jefferson Lab carries out superconducting radiofrequency research and development work for other scientific institutions.

Jefferson Lab seeks opportunities to bring the lab's innovations to the marketplace.

Jefferson Lab has a world of impact that reaches far beyond its hometown. In addition to our Hampton Roads neighbors, the lab provides far-reaching benefits for the nation and the global scientific community. Through partnerships with local and national institutions, as well as international collaborators, more than 1,900 scientists use our unique research capabilities to conduct experiments.

Jefferson Lab's mission is to probe the most basic building blocks of matter to advance our fundamental understanding of the world around us. Because those R&D activities can benefit society in such areas as health care and environmental science, the lab also works to make its scientific and

technological innovations available for commercial applications.

The lab makes a tangible mark in many ways beyond pure science, including:

- Ranking among the region's largest high-tech employers.
- Making a significant economic impact at the local, regional and national levels.
- Promoting its technological advancements to the commercial sector.
- Mentoring tomorrow's scientists and engineers.

The lab is also at the forefront of new technological capabilities for nuclear physics, including the future Department of Energy research machine called the

Electron-Ion Collider, and advanced computing and data science resources as the leader of the DOE's future High Performance Data Facility.

ECONOMIC IMPACT

More than a scientific gem, Jefferson Lab generates thousands of jobs in computer science, engineering, advanced manufacturing and more across the United States, with most of those jobs in the Commonwealth of Virginia.

Research at the lab also accounts for one-third of the country's Ph.D.s in nuclear physics. Our undergraduate and graduate internships and postdoctoral research opportunities ensure a steady flow of next-generation scientific and technical industry workers.

PACKING A PUNCH

Since 1995, nearly 250 experiments have been completed using the Continuous Electron Beam Accelerator Facility (CEBAF), with more than 60 approved for future

Jefferson Lab helps prepare the next generation of scientists and engineers.

running and many more still being proposed. These experiments sharpen our understanding of the smallest bits of matter that make up our universe, bring to light new areas for research, and identify puzzling results that lead to new ideas and experiments. This research also lays the groundwork for

the advances fueling the next generation of experiments at Jefferson Lab's CEBAF.

Upgrades to CEBAF have ushered in a new era of research – allowing the scientists who use the lab's facilities to probe even deeper into the building blocks of matter to investigate the forces that bind these particles. Practical uses for the results of basic research could be years or even decades away, yet the lab's technological and scientific advances are bringing tangible benefits to society today.

INTELLECTUAL CAPITAL

Lab scientists and engineers have been awarded more than 185 patents and generated more than 500 invention disclosures. The novel technologies produced from this vast reserve of intellectual property span a range of applications in cryogenics, superconducting radiofrequency technology, accelerator science, advanced manufacturing, computational science, machine learning techniques, imaging and

detector technologies, and more.

These advances are necessary for the next generation of leading-edge research facilities and are poised for entrepreneurial development.

Technologies transferred from the lab and its Biomedical Research & Innovation Center (BRIC) have led to

the creation of several new companies and business units whose industrial applications are helping people and organizations in real ways. There are two prominent examples from biomedical technologies and advanced materials:

- Dilon Technologies licensed Jefferson Lab detector technologies and built a medical device to aid in more precise breast cancer screenings and treatments. Now managed by SmartBreast Corporation, this tech continues to save lives today.

- BNNT Materials licensed from Jefferson Lab and NASA Langley Research Center a novel material with exceptional qualities – boron-nitride nanotubes – which led to the creation of a super-strong and heat-resistant material that is effective in a wide variety of uses.

The lab's impact on the community and economy therefore involves not only the future – just as the intellectual and scientific benefits do – but also the here and now.

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Jefferson Science Associates, LLC, manages and operates the Thomas Jefferson National Accelerator Facility, or Jefferson Lab, for the U.S. Department of Energy's Office of Science. JSA is a wholly owned subsidiary of the Southeastern Universities Research Association, Inc. (SURA). *April 2024*

