Fermilab Partnerships Contribute to the U.S. Economy

Fermilab partners with industry, universities, and other research facilities around the globe to help advance U.S. competitiveness and improve the lives of all our citizens.

Building U.S. technical capability
Through R&D, user facility, and STEM educational programs, Fermilab trains and inspires the next generation of professionals.

- 4000 scientists & engineers
- 50 countries
- 1000 university students
- 40K K–12 students

Transitioning technology to market
Partnership agreements give industry and outside institutions access to Fermilab's unique expertise and technology.

- 38 Cooperative R&D Agreements
- 13 Strategic Partnership Projects
- $23M Fermilab contributions yield 4x the value

All data based on FY2019 numbers
Driving innovation, creating opportunities and inspiring new businesses

Compact SRF accelerator This is a portable, energy-efficient, high-power electron beam generator that combines a portfolio of intellectual property in superconducting radio-frequency technology and accelerator science. It is suitable for mobile and industrial applications. IARC at Fermilab has obtained more than $4 million from other programs and agencies in accelerator technology research.

Electromagnetic mop for oil spills During the Deepwater Horizon oil spill, Fermilab scientist Arden Warner began experimenting with removing oil from water. He found that electromagnets and magnetite can be an efficient solution. Warner shared his idea with the Fermilab Office of Partnerships and Technology Transfer, and the first patent was issued in 2014. The technology is in the process of being commercialized.

Licensing a growing patent portfolio for new business opportunities
A growing portfolio of patents and copyrights creates new opportunities to license Fermilab technology to companies and entrepreneurs.

<table>
<thead>
<tr>
<th>Year</th>
<th>Active Patents</th>
<th>Patents Pending</th>
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</thead>
<tbody>
<tr>
<td>2007</td>
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<td>5</td>
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<tr>
<td>2019</td>
<td>30</td>
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Pushing technologies that drive new industries and markets
Fermilab's pioneering role in accelerating the development of superconducting (SC) wire at an industrial scale made applications such as MRI commercially viable.

1st discovery of NMR 1930
95% world's SC wire for Tevatron 1974
1st commercial MRI machine 1980
1st billion MRI market 2025
40M million MRI scans Today

A national laboratory funded by the Office of Science of the Department of Energy. www.fnal.gov