**Jefferson Lab Technology Transfer Overview**

**Background**

Thomas Jefferson National Accelerator Facility (Jefferson Lab) is a U.S. Department of Energy Office of Science single purpose national laboratory with approximately 700 employees. Scientists worldwide utilize the lab’s particle accelerator, known as the Continuous Electron Beam Accelerator Facility (CEBAF), to probe the most basic building blocks of matter. In addition, the lab capitalizes on its unique technologies and expertise to perform advanced computing and applied research with industry and university partners, and provides programs designed to help educate the next generation in science and technology.

The lab has been in operation since 1995 and the FY2017 annual budget was ~$160M. Managing and operating the lab for DOE is Jefferson Science Associates, LLC. JSA is a limited liability company created by Southeastern Universities Research Association and PAE Applied Technologies. Jefferson Lab’s primary mission is to conduct basic science research in the field of nuclear physics. Within the Management and Operating contract for Jefferson Lab with DOE, Technology Transfer is also called out in several places as part of its mission. Specifically it states: “The Contractor shall conduct technology transfer activities with a purpose of providing benefit from Federal research to U.S. industrial competitiveness.”

Thus, while engaged in pursuing basic nuclear physics research, the intellectual property (IP), unique instruments, expertise and processes that have potential application beyond basic science have been developed. The lab has been engaged in the transfer of these developments to industry through a program that includes patent licensing, cooperative research and development agreements (CRADAs) and strategic partnership agreements (SPPs).

**Jefferson Lab Technology Profile**

Jefferson Lab scientists and engineers have generated more than 400 invention disclosures and over 150 patents with 14 licenses to 8 companies. The majority of Jefferson Lab’s expertise, resources and IP with possible marketable applications and outside partnering potential fall into four primary categories: Advanced Accelerator Technologies, Nuclear Physics Detector Instrumentation, Novel Materials and High Performance Computing.

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| **Advanced Accelerator Technologies** | **Nuclear Physics Detector Instrumentation** | **Novel Materials** | **High Performance Computing** |
| Superconducting Radiofrequency (SRF) | High energy particle detection | Nanomaterials | Modeling |
| Electron beam injectors, sources and linear accelerators | Radiation detection and imaging | Radiation damage/ monitoring | Simulations |
| Cryogenics-  2 deg &  4 deg Kelvin | Nuclear medicine imaging | Radiation shielding | Multi-source data processing |

Our full portfolio of patents can be seen at <https://www.osti.gov/doepatents/search/term:%22newport%20news%22/sort:publication_date%20desc>

**Current Technology Transfer Structure**

Technology Transfer is managed by the Chief Technology Officer (CTO) in partnership with the Chief Financial Officer (CFO) and Business Operations Manager. There is currently no dedicated staff supporting tech transfer. We have a matrixed team that consists of portions of the CTO, CFO /Business Ops Manager, Legal Counsel, Communications Staff (Tech Transfer Coordinator), members of the Technology Review Committee and its two subcommittees- the Technical Review Sub-committee and the Marketing Sub-committee.

**Technology Transfer Resources**

Industrial Advisory Board (Past) - We had a panel of high-profile reps from industry that came 2x a year to review our portfolio, and give us direction in what technologies they felt would be most attractive to industry. This group led to the development of the Free Electron Laser at Jefferson Lab and provided us with regular scheduled access to industry leaders.

iBridge **–** We are working to have our portfolio of patents updated on iBridge and to make more of our technologies highlighted there. This is a free resource for Jefferson Lab.

Federal Lab Consortium – Becoming more active with this, updating our profile to leverage our presence there. We have not been using this resource as effectively as we could and are working to leverage our presence there to maximize our use of this resource.

Jefferson Lab Technology Transfer Website – Has been recently updated, and have plans to make this more interactive with business and industry (https://www.jlab.org/techtransfer).

**Strengths**

* TT team members dedicated to pushing our efforts to the next level
* Enthusiastic inventors, many of whom have strong initiative and established relationships that move our technologies
* New IP management system that will help us better track and manage IP
* New privately funded Tech Center Research Park under construction adjacent to Jefferson Lab (https://vtnews.vt.edu/articles/2017/08/tech-center-newport-news-groundbreaking.html)

**Challenges**

* Matrixed organization makes it difficult to apply the resources needed to enhance and expand Tech Transfer activities
* Jefferson Lab technologies are early stage and often need additional development to be at a stage where they would be interesting to industry
* Jefferson Lab is a single purpose lab whose primary mission is basic research, not applied research or commercialization – have to make sure that tech transfer activities are not seen as competing with basic nuclear physics mission
* Limited resources to strengthen our processes and expand tech transfer activities