Yale Wright Laboratory: Transforming Discovery

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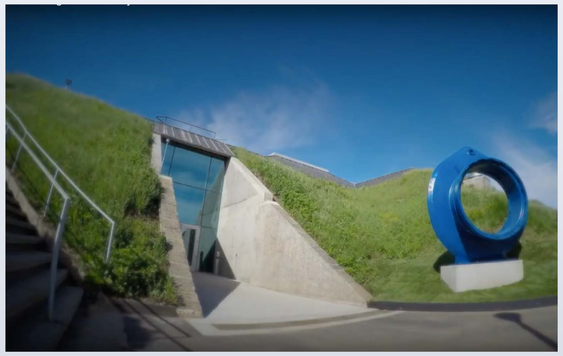
Wright Lab: The Portal to the Universe

What does the invisible universe consist of?
What is dark matter?
What are the properties of neutrinos?
What are the states of matter in the early Universe?
What is the structure of matter?
What drives the evolution of the Universe?

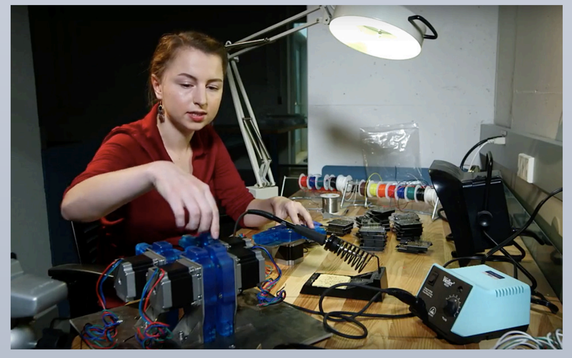


Discover Wright Lab

Wright Lab is advancing the frontiers of fundamental physics through **a broad research program in nuclear, particle, and astrophysics** that includes precision studies of neutrinos, searches for dark matter, investigations of the building blocks and interactions of matter, and observations of the early Universe.

The mission of Yale Wright Laboratory is to advance understanding of the physical world, from the smallest particles to the evolution of the Universe, by engaging in fundamental research, developing novel applications, training future leaders in research and development, educating scholars, and enabling discovery.

Wright Lab supports a diverse community of scientists, staff, and students who advance our mission and fosters cross-disciplinary collaborations across Yale University and worldwide.



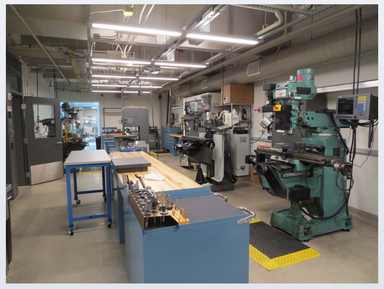
Discover more about Wright Lab through the voices of our students at **wlab.yale.edu/videos**.

Facilities for Research, Education and Innovation

Yale University Core Facilities at Wright Lab

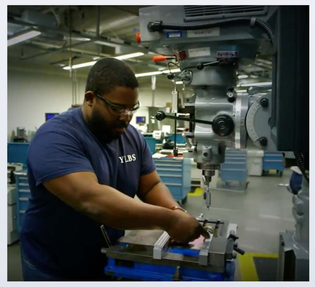
Advanced Prototyping Center (APC)

- Coherent Meta2C laser cutter
- Flow NanoJet Abrasive waterjet cutter
- Formlabs SLA and Dremel FDM 3D printers



Research Support Shop

- For use by students and researchers with professional supervision
- Hands-on training available



Teaching Shop

- For use by students and researchers with professional supervision
- Shop classes available
- Professional advice for projects
- Mills, lathes, welding shop, fume hood

Wright Lab Technical Staff

In-house, experienced professionals in:

- Engineering
- Electrical/Electronic/Mechanical
- Special/hazardous materials handling
- And more!

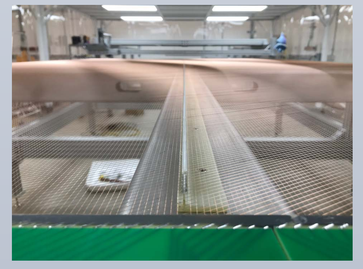
J.W. Gibbs Professional Shop

- Staffed by professional machinists
- Precision machining
- CNC capability
- Work with plastics and exotic metals

Physics Research Facilities at Wright Lab

Wright Lab's unique **facilities enable discovery in a wide range of research areas** from the smallest particle to the evolution of the Universe and frequent cross-disciplinary efforts between fields such as: Relativistic Heavy Ions, Neutrinos and Fundamental Symmetries, Elementary Particles, Astrophysics and Cosmology, Quantum Physics and Devices and Beam Physics.

- CAD and Remote Operations Room
- Clean Rooms
- Cryogenic laboratory
- Detector development laboratory
- Low background facility
- High-bay area "the Vault"
- Laser Rooms
- RF-Shielded Room
- Wood and Plastic Shop
- Investigator Laboratories
- Server Rooms for Physics & Astronomy
- Access to HPC at YCRC



wlab.yale.edu

Collaboration

With its on-site core facilities and research program, Wright Lab fosters **cross-disciplinary research collaborations** across Yale University and worldwide.

Campus collaborations:

- Yale Center for Research Computing (YCRC)
- Yale Center for Astronomy and Astrophysics (YCAA)
- Yale Quantum Institute (YQI)

Worldwide Collaborations

- Brookhaven National Laboratory, United States
- CERN, Switzerland
- Daya Bay, China
- Fermilab, United States
- Laboratori Nazionali del Gran Sasso, Italy
- Oak Ridge National Laboratory, United States
- Yangyang Laboratory, South Korea

Wright Lab's **flexible interaction spaces** enable frequent conferences and workshops for its collaborations, as well as regular seminars:

- Nuclear Particle Astrophysics (NPA) research seminars
- Weak Interaction Discussion Group (WIDG)
- Yale Physics Professional Development Organization (YPPDO)
- Dark Matter Discussion Group (DMDG)
- Instrumentation Lunch

Acknowledgements

Wright Laboratory is part of the Physics Department of Yale University.