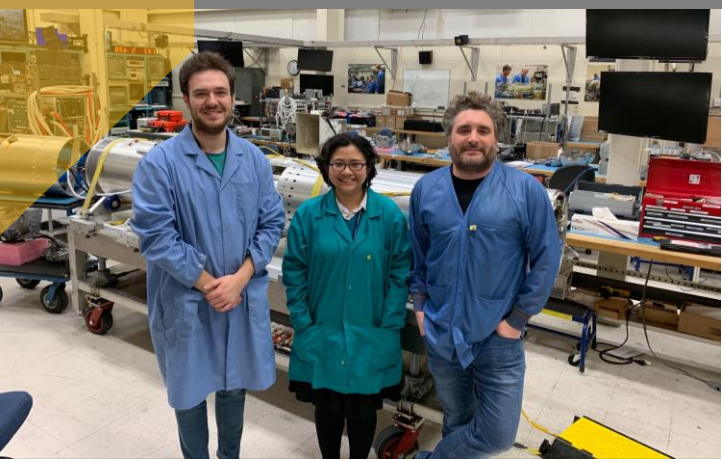

Partnering with you

The Center for Detectors connects our professors and their students to external partners through co-operative education, internships, senior projects, and Masters and PhD programs in Astrophysical Sciences and Technology, Microsystems, Engineering, and Imaging Science. Research can be done within CfD laboratories, at partner locations, or a combination of both. Matching funds are available for New York State companies.

Find out More:
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Center for Detectors
Engineering Hall, 17-3113
Rochester Institute of Technology
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Rochester, NY 14623-5604

RIT

Center for Detectors

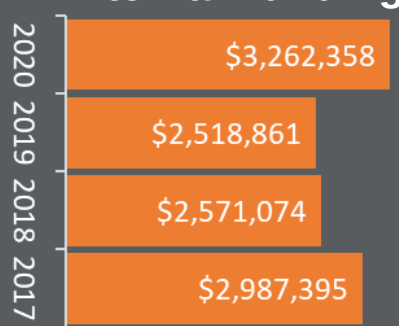
The Center for Detectors

The Center for Detectors (CfD) is an RIT academic research center in the College of Science. The CfD designs, develops and implements photon devices to enable scientific discovery, national security, and better living. These objectives are met by leveraging multi-disciplinary and symbiotic relationships between its students, staff, faculty, external partners, and by pursuing projects with personnel from multiple colleges, departments, companies, and national laboratories. The CfD was established in 2010, and now includes six professors and over two dozen students at all levels of matriculation.

30 active sponsored research awards (2020)

9 specialized labs

External Funding



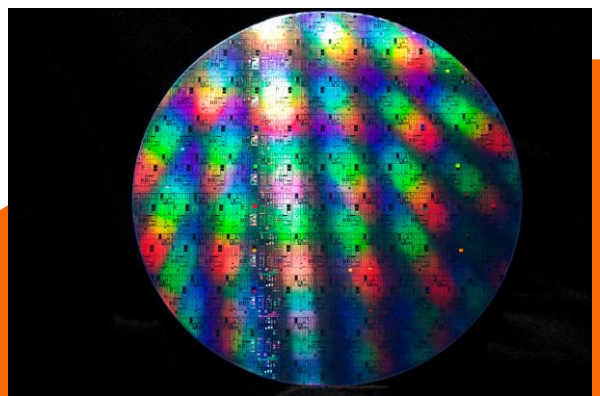
Research

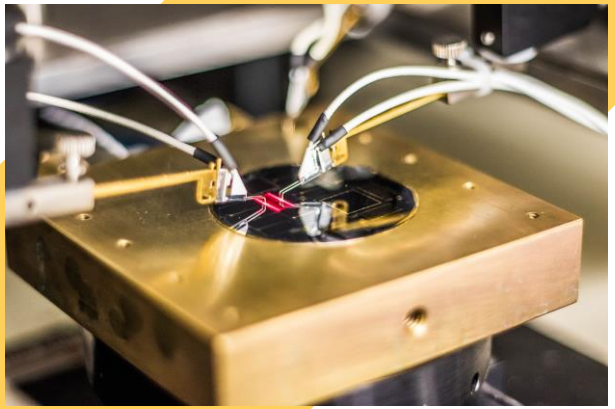
Detectors and Instrumentation

A primary objective of the CfD is the development of advanced detectors and instrumentation for cross-disciplinary applications. Major research projects include the development of detectors that can sense individual photons, cover very large areas of the sky, and have excellent sensitivity in ultraviolet and infrared wavelengths. These devices have specifications that make them ideal for the next generation of large ground-based and space-based astronomical telescopes, for applications such as finding another Earth and determining the nature of dark energy and dark matter. The CfD is also developing two dimensional arrays of micromirrors for astronomical applications.

Observational Astrophysics

This area includes observational research programs spanning the nearby universe of stars and the interstellar medium within the Galaxy to cosmological observations of the large-scale structure of the universe, including studies of fundamental physics. Projects include works that aim to elucidate the nature of the cosmos on the largest scales and most distant times. Other programs include the identification of the upper mass limit to stars and the search for young massive star clusters in the Galaxy. It also includes leadership roles on major future astronomy telescope panels to specify the detector requirements needed in order to satisfy mission science requirements.





Scaled Electronics

The Epitaxially-Integrated Nanoscale Systems Laboratory in the CfD develops nanostructures using epitaxy of III-V semiconductors on 2-D nanosheets. The research focuses on the growth of various nanostructures, including nanowires and nanofins, by metal-organic chemical vapor deposition through a synthesis process known as selective chemical etching for room temperature benchtop fabrication of flexible III-V nanostructure based optoelectronic and photovoltaic devices. The Semiconductor Photonics and Electronics Group develops III-V and III-Nitride semiconductors for photonic, optoelectronic, and electronic devices as promising candidates for next generation communication and illumination systems.

Integrated Photonics

The CfD Integrated Photonics Group develops photonic technology for broad application in commercial, defense, and scientific applications. It also leads a program for integrated photonics education. This area of research is focused on novel silicon photonic devices with the goal of realizing high performance computing communication, and sensing systems that leverage high speed, bandwidth, and sensitivity to light.