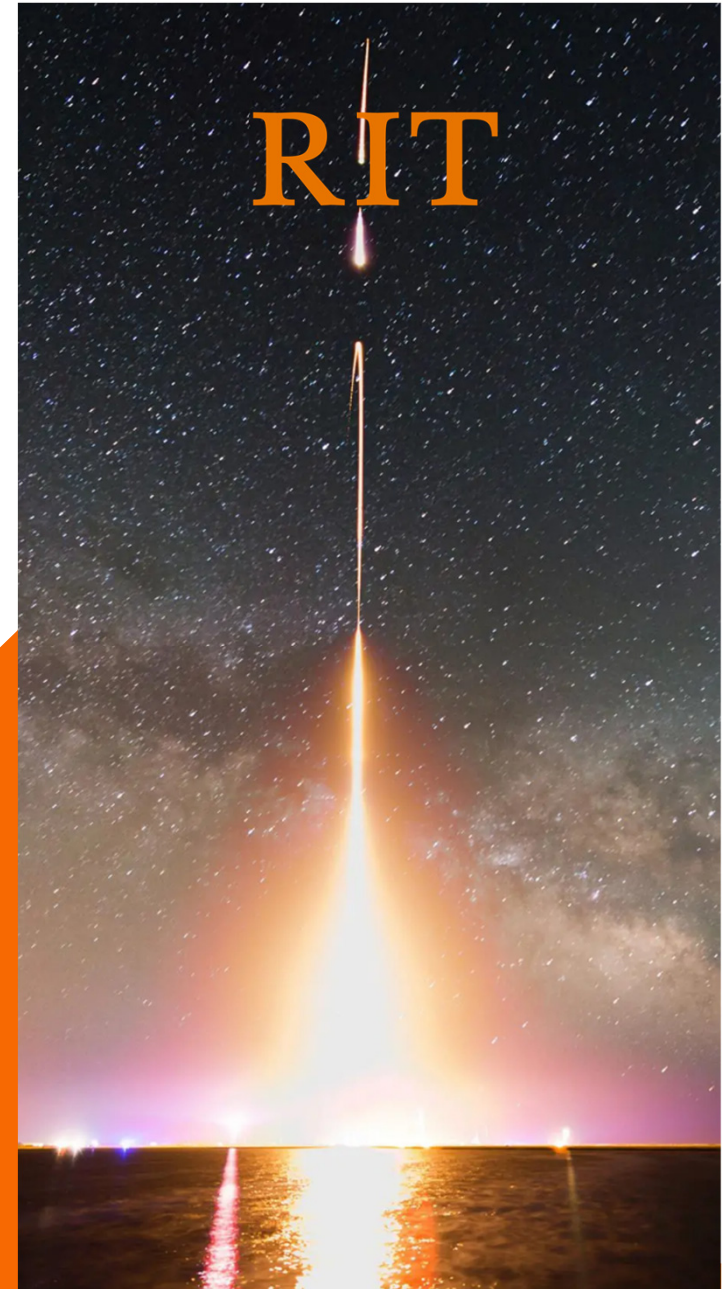


Partnering with You

The Center for Detectors connects RIT professors and their students to external partners through co-operative education, internships, senior projects, and Masters and PhD programs in Astrophysical Sciences and Technology, Physics, Microsystems, Engineering, and Imaging Science. CfD laboratories regularly conduct research either on site, 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
74 Lomb Memorial Drive
Rochester, NY 14623-5604



Center for Detectors

The Center for Detectors

The Center for Detectors (CfD) is an academic research center in the RIT College of Science. The CfD designs, develops, and implements photon devices to enable scientific discovery, national security, and better living. The CfD achieves these objectives by fostering interdisciplinary and symbiotic relationships among its students, staff, faculty, external partners, and by pursuing projects involving personnel from various colleges, departments, companies, and national laboratories. Established in 2010, the CfD now includes eight professors and over 40 students at all levels of matriculation.

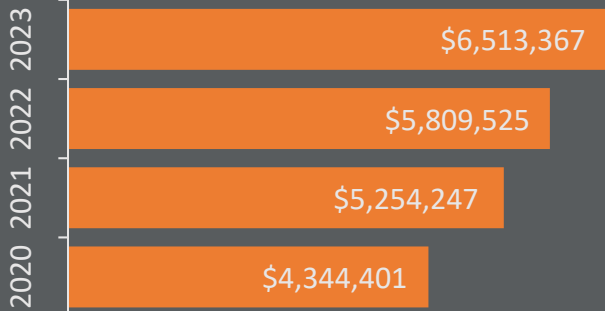


34 active sponsored
research awards
(2023)



9 specialized labs

External Funding



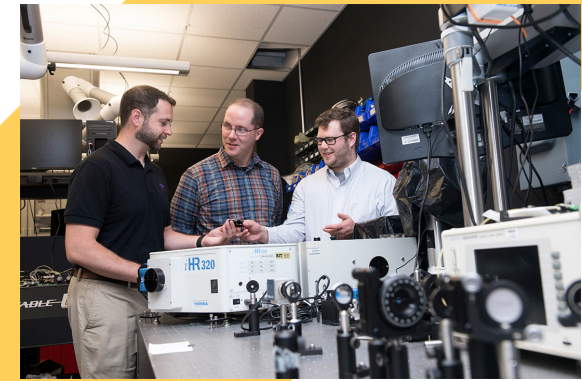
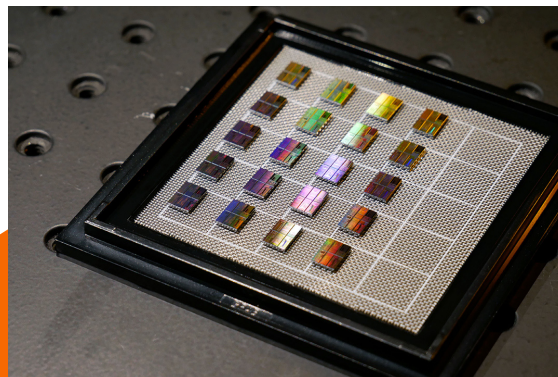
Research

Detectors and Instrumentation

A primary objective of the CfD is to develop advanced detectors and instrumentation for cross-disciplinary applications. Major research projects include the development of detectors that cover large areas of the sky, have excellent sensitivity in ultraviolet and infrared wavelengths, and can sense individual photons. These devices have specifications that make them ideal for the next generation of astronomical telescopes, for applications such as finding another Earth, or for determining the properties of dark energy and dark matter.

Observational Astrophysics

The CfD has a strong observational astrophysics research program that combines cutting edge technology development with the most sensitive telescopes ever developed. Center astrophysicists seek to answer the most pressing and fundamental questions in a search for the origins of life, planets, stars, and galaxies throughout the ages of the Universe. Particular targets of interest include life-bearing Earth-like planets, large-scale structures in the Universe, fundamental physics of the cosmos, massive stars, and the supermassive black hole in the center of the Galaxy. CfD researchers use their astrophysics observations and technology programs to inform federal funding agencies as they plan for future missions.



Integrated Photonics

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. The CfD Integrated Photonics Group, led by Professor Stefan Preble, develops photonic technology for broad application in commercial, defense, and scientific applications. It also leads a program for integrated photonics education.

CfD Researchers

Don Figer studies massive stars, young star clusters, and the Galactic center. Gregory Howland creates, manipulates, and detects quantum mechanical phenomena in the spatial degrees-of-freedom of quantum light. Parsian Mohseni develops tiny semiconductor structures using solid-state physics, materials characterization, and chemistry. Zoran Ninkov investigates and develops instruments and detectors for astronomy, remote sensing, and other applications. Dorin Patru applies efficient digital data processing architectures to aerospace technology, including cryogenic image sensors and cubesats. Michael Zemcov researches the physics of the early universe using novel ground-based and sub-orbital observing platforms. Jing Zhang engineers highly efficient III-Nitride and GaO semiconductor-based photonic, optoelectronic, and electronic devices.