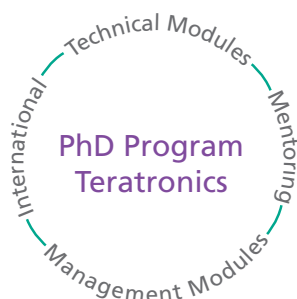




## Key Facts

Duration | Three-Year PhD-Program  
 Network | Interdisciplinary & International Collaborations  
 Modules | Professional & Personal Competences  
 Support | Financial Aid for Conferences & Trainings  
 Optional | MBA Fundamentals Program



## Target Group

Applicants with a Master's degree or equivalent qualification in physics, electrical engineering, computer science, or optics & photonics.

## HIRST Research Structure

- RA I Enabling Technologies
- RA II Millimeter-Wave Electronics
- RA III Integrated Nanophotonics & Plasmonics
- RA IV High-Throughput Digital Signal Processing
- RA V THz Technologies
- RA VI Teratronic Signal Processing and Terabit/s & Communication

Applications are accepted on a rolling basis.  
 Please visit [www.teratronics.kit.edu](http://www.teratronics.kit.edu) for further information.



## Contact

**Helmholtz International Research School for Teratronics (HIRST)**  
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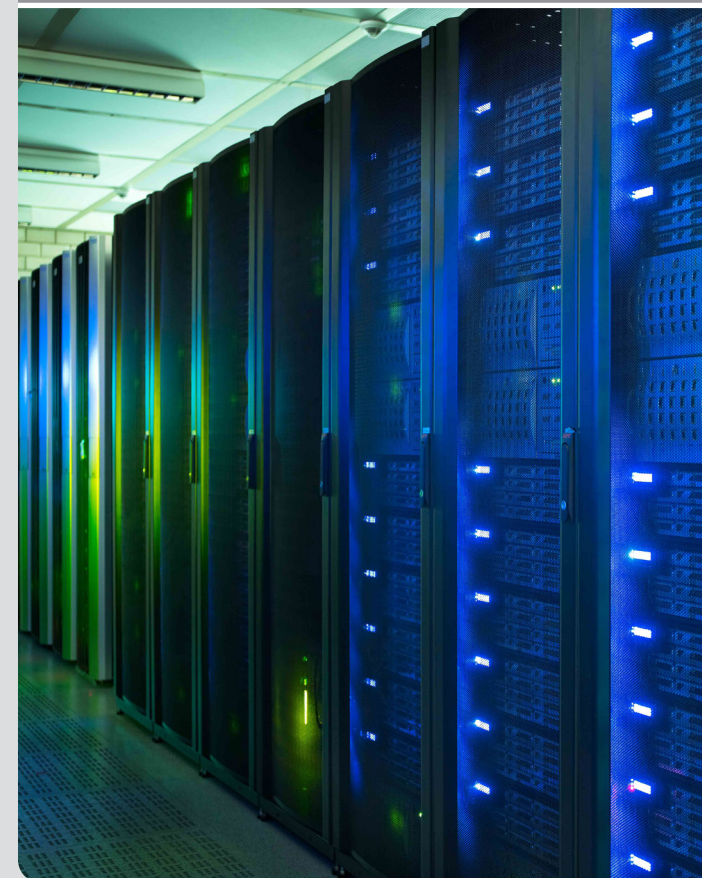


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 RESEARCH FOR GRAND CHALLENGES

# Always on the fast track? PhD Program in Teratronics

MULTIDISCIPLINARY RESEARCH IN ELECTRONICS, OPTICS & PHOTONICS AND MICRO- AND NANOTECHNOLOGY



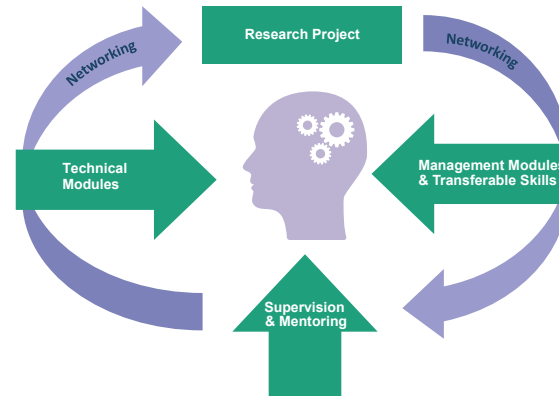


## What is Teratronics all about?

Teratronics is a multidisciplinary field embracing key aspects of optics and photonics, high-frequency electronics, and high-throughput digital signal processing. Teratronic systems are characterized by an intimate and inseparable co-integration of photonic components, millimeter-wave circuits, and digital elements. The field of Teratronics comprises methods and technologies that are needed to generate, process, and characterize terabit/s data streams and electromagnetic waveforms with terahertz bandwidths or carrier frequencies.

## Our Research School

The Helmholtz International Research School for Teratronics (HIRST) pursues a new approach in research and teaching which enables an interdisciplinary link among the traditional disciplines of physics, material science, electrical engineering, and computer science. HIRST offers a training program that allows next-generation researchers to explore the enormous potential of Teratronics.



## A Multidisciplinary PhD Program

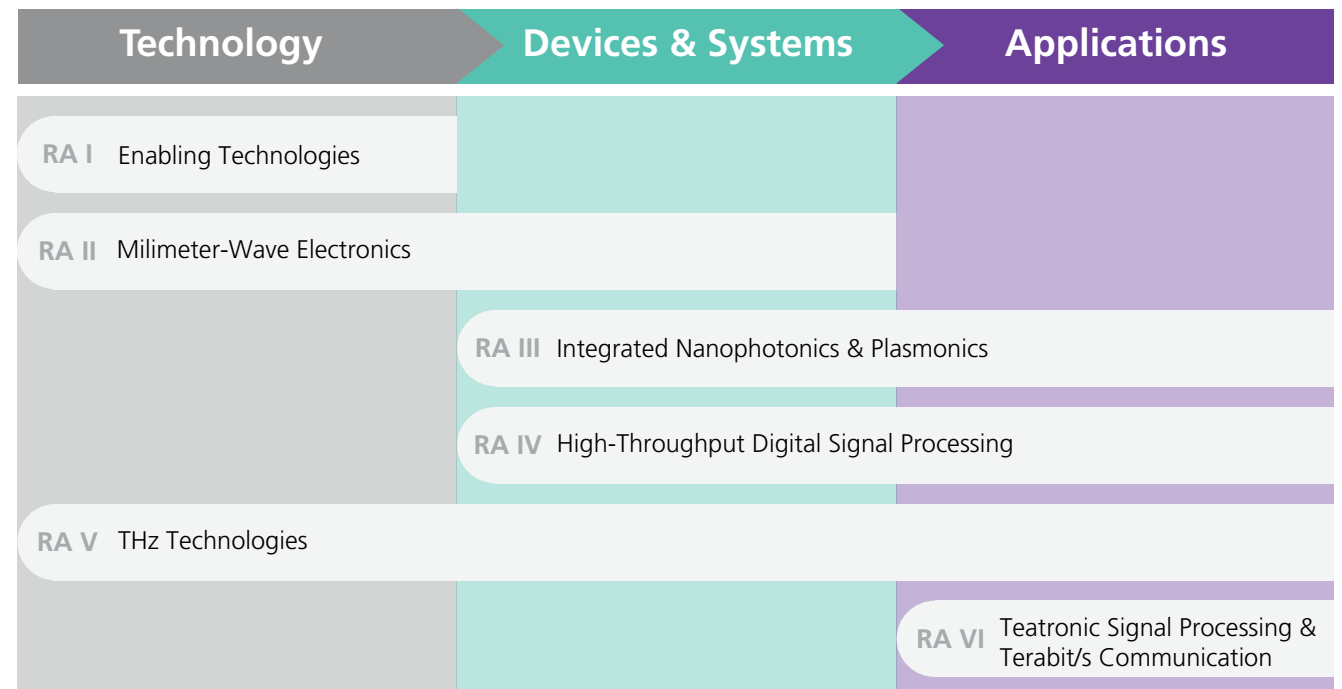
HIRST has developed and implemented a PhD program, combining fundamental concepts of integration technologies and large-scale photonic-electronic integration with aspects of system integration and engineering, application-specific knowledge in high-speed communications and terahertz signal processing. These skills cannot be acquired in the framework of any of the classical academic disciplines.

There are many reasons why you should choose HIRST for your PhD: The excellent research environment and the school's outstanding reputation for producing internationally leading research results are just a few of the reasons that could be mentioned.

Graduate students prepare for a career in academic or industrial research and management by building up specific technical key competences and soft skills along with strong international networks.

## Research Areas

Teratronics systems are used for terabit/s data communications, processing of waveforms with THz bandwidth, and exploitation of such waveforms in metrology and sensing technology. HIRST offers a multidisciplinary training program that establishes interdisciplinary crosslinking in the thinking of the involved PhD researchers. Research within HIRST is structured along the complete innovation chain of Teratronics, ranging from material science and enabling technologies to teratronic signal processing and terabit/s communications.



All research areas are strongly interlinked as is visible in the figure.