

Welcome to the RADHARD School 2024



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RADHARD School 2024

School on radiation-hard silicon particle detectors and electronics

for master's students, doctoral and postdoctoral researchers (participation in person or online)



September 30 – October 2, 2024
Forschungs- und Technologiezentrum
Detektorphysik (FTD)
University of Bonn

General lecture topics

- Microelectronics for semiconductor particle sensors
- Radiation damage effects and mitigation
- Device characterization
- Practical exercises: Analog frontend

Organization

- Prof. Dr. Jochen Dingfelder (Bonn)
- Prof. Dr. Thomas Noulis (Thessaloniki)
- Dr. Hans Krüger (Bonn)
- Dr. Vasiliki Gogolou (Thessaloniki)

Web page & registration

<https://indico.hiskp.uni-bonn.de/event/692/>

Please register on the web page by Sep. 23



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- First school organized within the **DAAD-funded** project **”Radiation-hard integrated-circuits educational platform (RADHARD)** between the Aristotle University of Thessaloniki and the University of Bonn
- In RADHARD, we combine expertise from **detector development** and **IC design** to initiate common projects and create an educational platform for radiation-hard IC design
- **Thanks to DAAD** for making this event possible
- At this school, we also strengthen our common activities in the area of detector development between the University of Bonn, the TU Dortmund and the University of Siegen in the context of our Cluster of Excellence Initiative **”Color meets Flavor”**.

The school's program

	Monday, Sep. 30	Tuesday, Oct. 1	Wednesday, Oct. 2
9:00-10:30	C. Lampoudis: Radiation detection devices – Core principles and diverse applications	A. Michailidis: Radiation detector readout frontend ASICs	V. Gogolou: Introduction to power management
10:30-11:00	COFFEE	COFFEE	COFFEE
11:00-12:30	N. Wermes: Noise in silicon detector readout	T. Noulis, E. Papageorgiou: Custom analog IC design toward AI automation	I. Gregor: What you always wanted to know about silicon detectors
12:30-14:00	LUNCH	LUNCH	LUNCH
14:00-15:30	N. Wermes: Radiation damage in silicon detectors	Y. Dieter: Detector characterization – Test beams and irradiation	S. Zhang: TCAD and device layout (guard rings)
15:30-16:00	COFFEE	COFFEE	COFFEE
16:00-18:00	H. Krüger: Introduction to practical exercise	Practical exercise: AFE	Practical exercise: AFE

Practical exercise: Analog Frontend

<https://embedded-system-lab.readthedocs.io/en/latest/index.html>



latest

Search docs

CONTENTS:

- Introduction
- Software Environment
- Embedded System Hardware
- General Purpose Input/Output Interface
- GPIO Programming Tutorial
- Experiment: Source-Monitoring-Unit and MOSFET Parameter Extraction
- Experiment: Successive Approximation ADC
- Experiment: Capacitance Measurement
- Experiment: Analog Signal Processing for Semiconductor Sensors**
- Experiment: Time Domain Reflectometry
- Experiment: Fast ADC

Home / Embedded System Lab

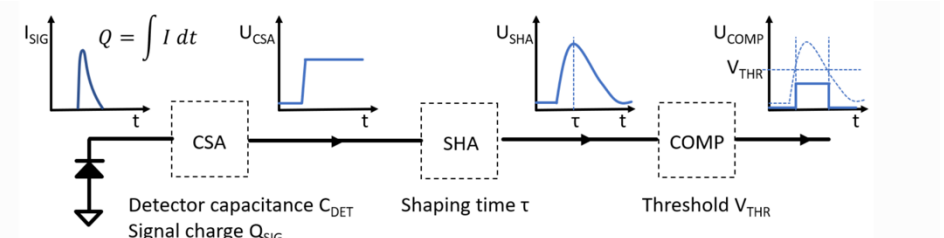
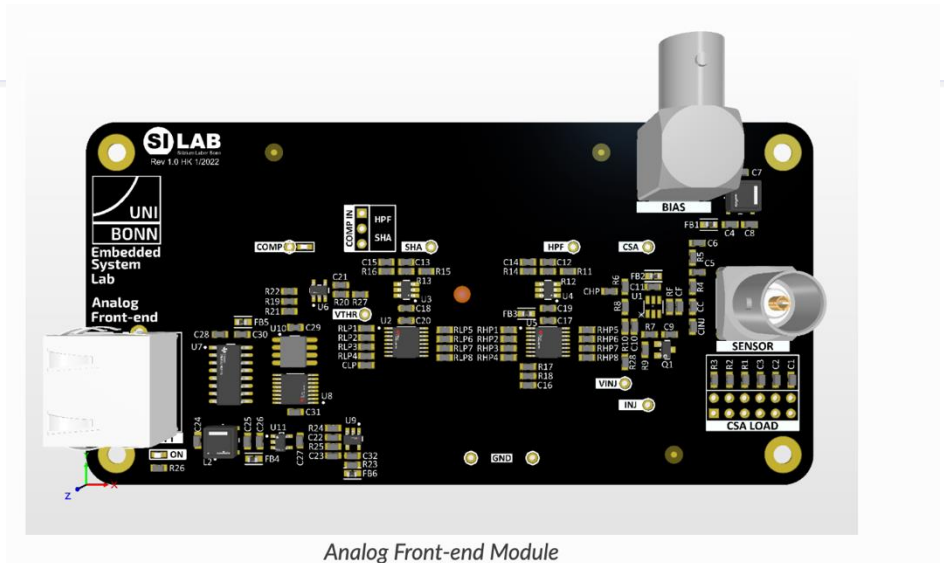
Embedded System Lab

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Indices and tables

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Generic read-out chain for a semiconductor detector: charge sensitive amplifier (CSA), pulse shaping amplifier (SHA), and comparator (COMP). Shown are typical signal waveforms between the blocks and the parameters which can be controlled for each block.

Organizational stuff: Lunch/dinner/coffee breaks

- Coffee breaks will be set up in the foyer of the FTD
- Several places for lunch nearby (Clemens-August-Straße)
- Social dinner on Tuesday at 19:00
“Gesindehaus”
Clemens-August-Straße 59