

UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II

**PHD PROGRAM IN
INFORMATION TECHNOLOGY AND ELECTRICAL ENGINEERING
PHD PROGRAM IN INFORMATION AND TECHNOLOGY FOR HEALTH**

Seminar announcement

Friday 1st December 2023, Time: 10:30 - 11:30

Aula Seminari, Floor 1, Building 3, DIETI - Via Claudio, 21 - NAPOLI



Dr. Salvatore Danzeca

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Ensuring Electronic Reliability Against CERN's Radiation Environment

Abstract: The operations of particle accelerators at CERN produce not only scientific discoveries but also intense radiation environments that can negatively affect the electronic systems and components within these accelerators. This presentation aims to investigate the challenges posed by radiation to electronic components in CERN's particle accelerators. We will explore the main cause of radiation and the effects on electronic devices. The focus of the presentation will be on the Radiation Hardness Assurance (RHA) guidelines, highlighting the processes used to ensure the resilience

of electronics against radiation. We will also discuss the dosimetry techniques employed to assess and measure the radiation levels. Finally, a detailed look into radiation test facilities, including their roles, capabilities, and challenges, will be presented. This presentation will provide insights into the comprehensive approach taken toward understanding, testing, and mitigating radiation effects in the high-energy physics environment at CERN. The presentation will conclude with an overview of current and future research, emphasizing the continuous efforts in this field.

Lecturer short bio: *Dr. Salvatore Danzeca is currently the section leader of the "Electronics Production and Radiation Tolerance" team at CERN in the Beams department. His mandate is to provide the radiation testing and qualification service in the context of the CERN accelerator equipment. He is responsible for the operation, monitoring, and maintenance of more than 500 radiation monitoring devices installed in the LHC and in the injectors chain. He oversees two radiation test facilities at CERN: CHARM (the CERN High energy AcceleRator Mixed field facility) and CC60 (a Co60 facility).*

For information: Prof. Francesco Fienga (DIETI, UniNA) – francesco.fienga@unina.it (organizer)

Attendance at the seminar is in-person. **Participants** enrolled in PhD courses are requested to **send an e-mail to Prof. Francesco Fienga by 29 November 2023**, with the following information: Student name and surname, name of the PhD course, PhD cycle. In the email, students abroad need to motivate the request for remote attendance, indicating the place and period they are spending in a foreign institution. Once authorized, they must keep the camera on for the entire duration of the seminar (CODE MS TEAMS: rncxib5)