

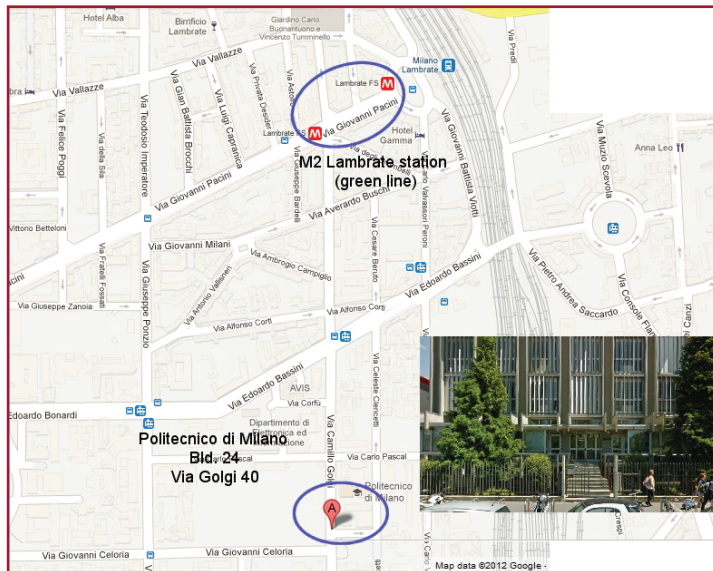
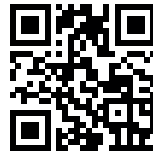
The IEEE NPS Italy Chapter is pleased to announce the third edition of the Best Ph.D. Thesis Award in memory of Emilio Gatti and Franco Manfredi. The award will be presented to distinguished young scientists who have completed a Ph.D. thesis in the field of Radiation Instrumentation for fundamental and applied research. The prize consists of 500 Euros and a certificate. Each year certificates will be also awarded to the two runners-up.

The event is free, but registration is required at the link: <https://tinyurl.com/ufkcyeg>

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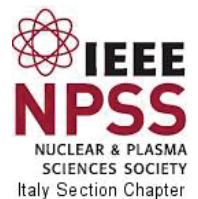
Emilio Gatti and Franco Manfredi

**Best Ph.D. Thesis Award
in Radiation Instrumentation**

**Award Ceremony
Politecnico di Milano
December 10, 2019**



**POLITECNICO
MILANO 1863**



December 10, 2019

**Politecnico di Milano - DEIB, Alpha Room
Building 24, Via Golgi 40, Milano (Italy)**

Agenda:

14:00

DEIB Head of Department Welcome

Stefano Tubaro

Politecnico di Milano - DEIB

14:20

IEEE NPS Italy Chapter Chair Welcome

Gian-Franco Dalla Betta

Università degli Studi di Trento and INFN

14:30

"Recent Developments in Proton Therapy – Technology for the Benefit of Patients"

Martin Grossmann Handschin - IEEE Distinguished Lecturer

Paul Scherrer Institut, Villigen (Switzerland)

15:45

Award Ceremony

16:05

Awardee Lecture

16:25

Coffee Break

16:45

"Low-noise Analog Front-End Circuits in the Age of Nanoscale CMOS for the New Generation of Silicon Pixel Detectors at LHC"

Valerio Re

Università degli Studi di Bergamo and INFN

17:55

Conclusions and Farewell



Martin Grossmann Handschin has worked in High Energy Physics at CERN and in Muon Physics at PSI before joining the Center for Protontherapy CPT there in 1995. He programmed the therapy control system for the world's first pencil beam scanning gantry which started clinical operations in 1996. For many years he led the IT & Electronics group at CPT and was in charge of control and safety systems for several PSI built treatment rooms. He is now Senior Technical Advisor at CPT. Martin Grossmann is chair of CANPS (2018-2021), member of NPSS ADCOM (since 2017) and member of RISC (2017-2019). He has been actively involved in the organization of the recent editions of the IEEE NPSS Real Time Conference.

The use of proton beams for radiotherapy has been proposed in the 1940s and patients have been treated with this modality since the 1960s. While pioneering work was carried out in physics research laboratories therapy facilities have now become commercially available by a number of vendors. Technology-driven research is ongoing to further improve the quality of protontherapy and make it available to a larger number of patients. The talk will give an overview of the development of protontherapy and illustrate how therapeutic innovations have been driven by technological progress. Current research topics like approaches to compensate the effect of organ motion will be presented.



Valerio Re is full professor of Electronics at the University of Bergamo. He received the M.Sc. degree in Physics (Summa cum Laude) from the University of Milano in 1985 and in 1990 the Ph.D. degree in Electronic Engineering from the University of Pavia. His research activity is focused on the field of micro-electronics for high energy physics experiments at particle accelerators and of X-ray imagers at photon science facilities. He joined the CMS experiment at CERN and collaborates at the design of front-end electronic systems for future upgrades of pixel detectors in the CMS Tracker. Valerio Re has also developed monolithic active pixel sensors, in view of applications in detector systems for experiments at future high luminosity colliders and for imaging at high data rate. Valerio Re is author or coauthor of more than 400 papers on international scientific journals and conference proceedings.

The talk will discuss the state of the art in the field of high density, mixed-signal microelectronic front-end design with a focus on the activities carried out for the new generation of 65 nm CMOS pixel readout chips for the ATLAS and CMS experiments at the High Luminosity LHC. The talk will review the different solutions for the analog front-end circuits that were tested in view of the implementation of these chips. The talk will also give a preview of the challenges that lay ahead for future chip developments with even more scaled CMOS technologies.