



University of Crete Research Center  
**UCRC**  
for the Humanities, the Social & Education Sciences



## ***Joint Seminar Series in Translational and Clinical Medicine***

***UoC Medical School – IMBB-FORTH – UCRC***

***joint with the Department of Materials Science and Engineering (MSE)***

**"Innovative technologies for implantable medical devices"**

**Prof. Nicola Baldini**

Direttore Dipartimento Rizzoli-RIT (Research, Innovation & Technology)  
Direttore SC Scienze e Tecnologie Biomediche e Nanobiotechnologie  
IRCCS Istituto Ortopedico Rizzoli  
Dipartimento di Scienze Biomediche e Neuromotorie  
Alma Mater Studiorum - Università di Bologna

**Wednesday, 8<sup>th</sup> October 2025, 15:00 – 16:00**

**Postgraduate Auditorium,  
Medical School of the University of Crete**

### **Hosts**

Maria Marketou, Associate Professor of Cardiology,  
Medical School, University of Crete

Maria Chatzinikolaïdou, Professor of Biomaterials in Bioengineering,  
Department of Materials Science and Engineering, University of Crete

Helen Papadaki, Professor of Haematology,  
Medical School, University of Crete

## **Abstract**

The Istituto Ortopedico Rizzoli has played a pioneering role in the development of orthopaedic implants, from the early contributions of Codivilla to the advances under Pizzoferrato in biomaterials research and biocompatibility testing. Building on this historical trajectory, the Institute has explored a wide range of implant designs, supported by histological examinations that clarified mechanisms of pro-osteointegration. Particular emphasis has been placed on prosthesis surface bioengineering, with innovative coating strategies and deposition techniques such as ionized jet deposition (IJD), aimed at enhancing implant fixation and biological affinity. Despite these advances, aseptic loosening and peri-implant infections remain major clinical challenges. Prevention strategies combine material surface modifications with microbiological insights to reduce bacterial colonization and improve host response. By integrating progress in material science, cell biology, and microbiology, Rizzoli's research exemplifies how multidisciplinary approaches can drive the next generation of implantable medical devices toward improved safety, functionality, and patient outcomes.

## **Prof. Baldini short cv**

An orthopaedic and oncologist at the Istituto Ortopedico Rizzoli, head of the Biomedical Science and Technology and Nanobiotechnology unit. He is also the Director of the Department Rizzoli-RIT (Research, Innovation & Technology). His research covers several aspects of bone pathophysiology, including bone cancer, tissue engineering, and metabolic bone diseases.

<https://www.unibo.it/sitoweb/nicola.baldini5/cv-en>

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*The Joint Seminar Series in Translational and Clinical Medicine are organized to bring together scientists from Basic, Clinical as well as Social Sciences and Humanities providing a forum for exchanging ideas and scientific information with an intent to promote the development of de novo collaborations between researchers from UoC Medical School, IMBB-FORTH and UCRC.*