



SERVIZIO SANITARIO REGIONALE  
EMILIA - ROMAGNA  
Istituto Ortopedico Rizzoli di Bologna  
Istituto di Ricovero e Cura a Carattere Scientifico



ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA  
DEPARTMENT OF  
BIOMEDICAL AND NEUROMOTOR SCIENCES

# INTERNATIONAL WORKSHOP ON

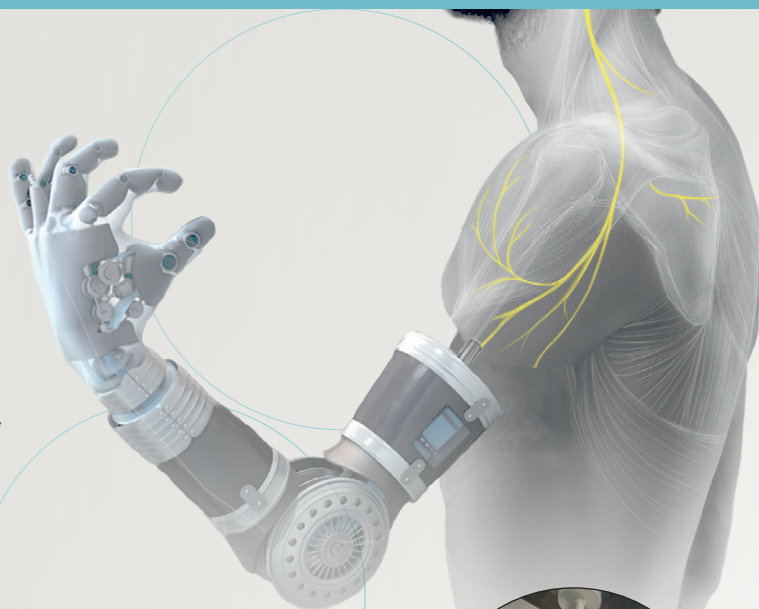
## OSSEOINTEGRATION AND BIONIC LIMB RECONSTRUCTION

**BOLOGNA** *(Italy)*

**October 18-19<sup>th</sup> 2023**

*Rizzoli Orthopaedic Institute*

*Institute of Anatomy,  
University of Bologna*



## ADVANCED PROGRAM

# FOREWORD

*Bionic limb reconstruction has grown tremendously in the last decade and faces the challenges of restoring motor and sensory function in patients who have lost their limb. Pioneering leaders in the field of limb reconstruction from both fields of medicine and bioengineering will come together for this International Workshop in Bionic Limb Reconstruction at the Rizzoli Institute in Bologna, Italy, and share their experiences with the newest techniques to improve the function and the quality of life of amputated patients. A world class faculty members will provide personal instruction with lectures, panel discussions, video dissections, and case presentations. Furthermore, a Cadaver Lab session will offer the opportunity to see different surgical techniques such as osseointegration, targeted muscle/sensory reinnervation, regenerative peripheral nerve interface, and many others, with interactive discussions with the audience to optimize teaching and learning time.*

## Scientific Coordinators

Paolo Sassu, Bologna - Italy

Stefano Zaffagnini, Bologna - Italy

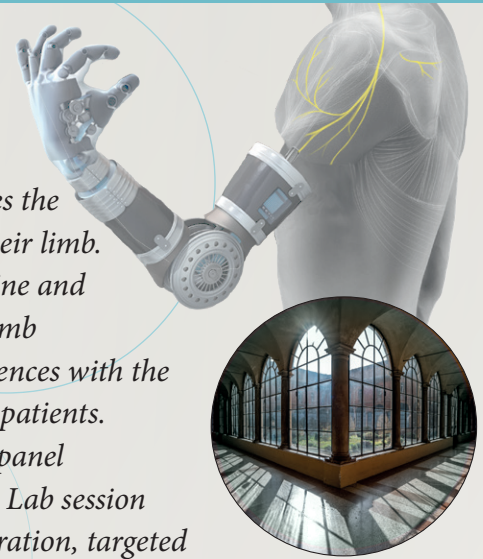
Marco Innocenti, Bologna - Italy

## Scientific Secretariat

Francesco Mori, Bologna -Italy

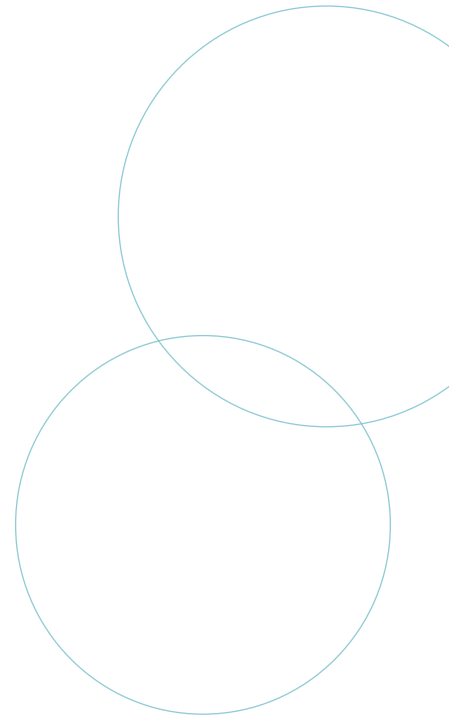
Francesca Alice Pedrini, Bologna - Italy

Luca Salmaso, Bologna - Italy



# FACULTY

Oskar **Aszmann**, Vienna (Austria)  
Rickard **Brånemark**, Jacksonville (USA)  
Matthew J. **Carty**, Boston (USA)  
Paul S. **Cederna**, Ann Harbor (USA)  
Christian **Cipriani**, Pisa (Italy)  
Lorenzo Alirio **Diaz Balzani**, Rome (Italy)  
Jennifer **Ernst**, Hannover (Germany)  
Jonathan A. **Forsberg**, New York (USA)  
Alexander **Gardetto**, Brixen (Italy)  
Marco **Innocenti**, Bologna (Italy)  
Yan **Li**, Stockholm (Sweden)  
Lucia **Manzoli**, Bologna (Italy)  
Max **Ortiz Catalan**, Gothenburg (Sweden)-Melbourne (Australia)  
Changsik John **Pak**, Seoul (South Korea)  
Stanisa **Raspopovic**, Zurich (Switzerland)  
Stefano **Ratti**, Bologna (Italy)  
Paolo **Sassu**, Bologna (Italy)  
Jaimie T. **Shores**, Baltimore (USA)  
Jason **Souza**, Columbus (USA)  
Stefano **Zaffagnini**, Bologna (Italy)



# Wednesday, October 18th 2023

Rizzoli Orthopaedic Institute - Codivilla Putti Research Center

**8.00** Registration

**8.30** Opening remarks and introduction to the Workshop - **Marco Innocenti, Paolo Sassu, Stefano Zaffagnini**

## SESSION I - OSSEOINTEGRATION

**Moderators: Rickard Brånemark, Jason Souza**

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**8.45** Osseointegration: history and basic science - **Rickard Brånemark**

**9.00** Clinical experience with osseointegration for bone-anchored prostheses - **Jonathan A. Forsberg**

**9.15** Osseointegration in the thumb and fingers - **Yan Li**

**9.30** Osseointegration in limb replacement: soft tissue considerations - **Jason Souza**

**9.45** Potential complications and expected outcomes - **Yan Li**

**10.00** The future in osseointegrated reconstruction - **Rickard Brånemark**

**10.15** Discussion

**10.30-11.00** *Coffee Break*



## SESSION II – BIONIC LIMB RECONSTRUCTION

**Moderators:** Paolo Sassu, Max Ortiz Catalan

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- 11.00** Challenges in artificial limb reconstruction - **Max Ortiz Catalan**
- 11.15** Bionic limb reconstruction after amputation or devastating peripheral nerve injuries - **Oskar Aszmann**
- 11.30** Regenerative peripheral nerve interface (RPNI) for prosthesis control - **Paul S. Cederna**
- 11.45** The myokinetic interface: tracking implanted magnets as a mean for prosthetic control - **Christian Cipriani**
- 12.00** Neuromusculoskeletal prostheses and pain neurorehabilitation - **Max Ortiz Catalan**
- 12.15** Bionic lower limb: experiences from the Asan medical centre - **Changsik John Pak**
- 12.30** Bone-anchored prothesis and TMR: experience from the Campus Biomedico in Rome - **Lorenzo Alirio Diaz Balzani**
- 12.45** Discussion
  
- 13.00- 14.00** *Lunch*

## SESSION III – ANATOMICAL AND ARTIFICIAL LIMB RECONSTRUCTION

**Moderator:** Oskar Aszmann, Jaimie T. Shores

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- 14.00** Somatosensory neuroprosthetics - **Stanisa Raspopovic**
- 14.15** Targeted muscle reinnervation (TMR) for prosthesis and pain control - **Jason Souza**
- 14.30** Agonist-antagonist myoneural interface (AMI) in Europe - **Jennifer Ernst**
- 14.45** Combining agonist-antagonist myoneural interface (AMI) and osseointegration - **Matthew J. Carty**
- 15.00** Targeted sensory reinnervation - **Alexander Gardetto**

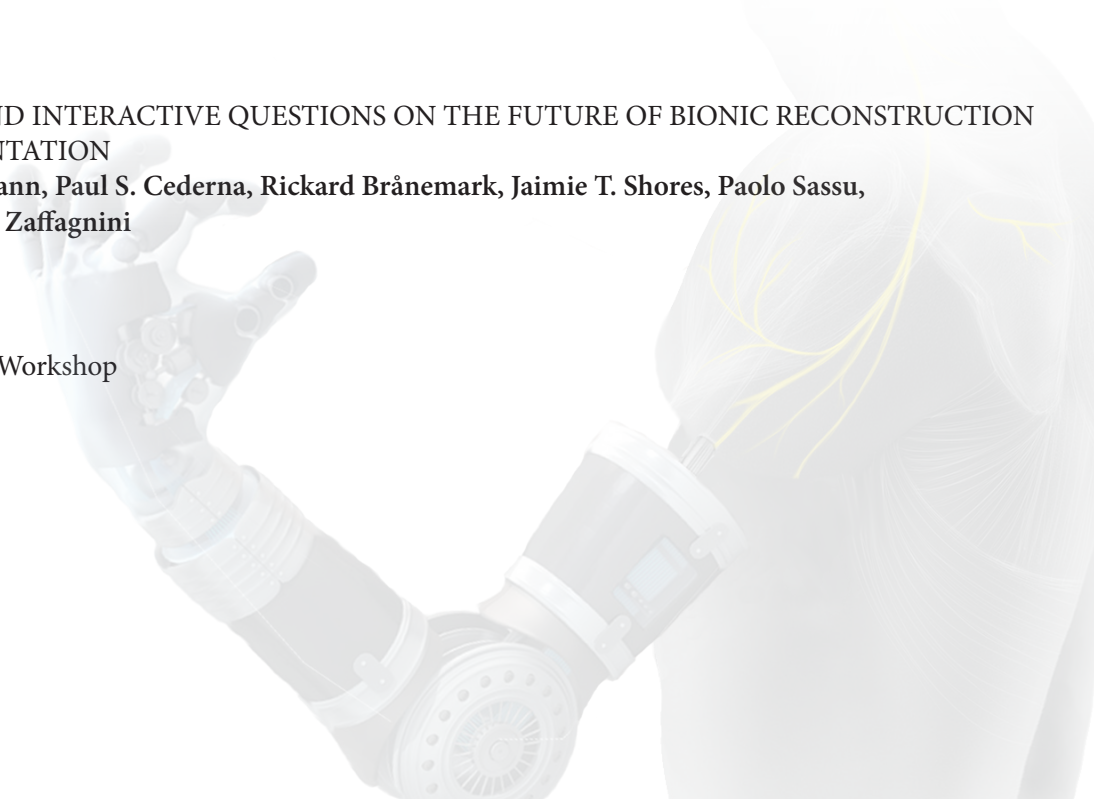
- 15.15** Bionic limbs and hand transplantation: the Swedish experience - **Paolo Sassu**
- 15.30** Bionic limbs and hand transplantation: the Johns Hopkins University experience - **Jaimie T. Shores**
- 15.45** Preliminary experience with osseointegration at the Istituto Ortopedico Rizzoli - **Stefano Zaffagnini**
- 16.00** Embodiment in limb prostheses - **Max Ortiz Catalan**
- 16.15** Discussion

**16.30-16.45** *Coffee break*

**16.45** PANEL DISCUSSION AND INTERACTIVE QUESTIONS ON THE FUTURE OF BIONIC RECONSTRUCTION AND LIMB TRANSPLANTATION

**Moderators:** Oskar Aszmann, Paul S. Cederna, Rickard Brånemark, Jaimie T. Shores, Paolo Sassu, Marco Innocenti, Stefano Zaffagnini

- 17.40** Discussion
- 17.55** Closing remarks
- 18.15** End of the first day of the Workshop



# Thursday, October 19th 2023

Rizzoli Orthopaedic Institute - Codivilla Putti Research Center

Institute of Anatomy, University of Bologna - Sector Anatomy room (In live streaming)

## SESSION IV – SURGICAL TECHNIQUES

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**Moderator: Marco Innocenti, Paolo Sassu**

- 8.00** Osseointegration: indications and surgical technique - **Rickard Brånemark, Jonathan A. Forsberg**
- 8.20** Targeted muscle reinnervation - TMR: indications and surgical technique - **Oskar Aszmann**
- 8.40** Regenerative peripheral nerve interface - RPNI: indications and surgical technique - **Paul S. Cederna**
- 9.00** Targeted sensory reinnervation – TSR: indications and surgical technique - **Alexander Gardetto**
- 9.20** Agonist-Antagonist myoneural interface- AMI: indications and surgical technique - **Matthew J. Carty, Jennifer Ernst**
  
- 9.40-10.10** *Coffee break*

## LIVE DEMONSTRATION ON CADAVER

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**Institute of Anatomy, University of Bologna - Sector Anatomy room (In live streaming)**

- 10.10** Introduction to the Institute of Anatomy - **Lucia Manzoli, Stefano Ratti**
- 10.20** Osseointegration - **Rickard Brånemark, Jonathan A. Forsberg**
- 11.00** TMR - **Oskar Aszmann, Jason Souza**
- 11.40** RPNI - **Paul S. Cederna, Paolo Sassu**
- 12.20** AMI - **Matthew J. Carty, Jennifer Ernst**
- 13.00** Discussion
- 13.15** Closing remarks - **Marco Innocenti, Paolo Sassu, Stefano Zaffagnini**
- 13.30** End of the Workshop



# GENERAL INFORMATION

## COURSE VENUE

**Marchetti Hall**

**Rizzoli Orthopaedic Institute**

Codivilla Putti Research Center

Via di Barbiano 1/10, Bologna (Italy)

How to reach the venue

<https://www-test.ior.it/en/curarsi-al-rizzoli/how-reach-us>

## REGISTRATION FEE

Physicians	€ 500,00 (VAT 22% included)
Trainees/Residents**	€ 250,00 (VAT 22% included)
Physiotherapists, Biomedical Laboratory Technician, Orthopedic Technician	€ 250,00 (VAT 22% included)
Biomedical Engineers	€ 300,00 (VAT 22% included)

*\*\* A certificate will be requested upon registration*

The registration fee covers:

- Participation in all sessions of the Workshop
- Coffee Breaks and Lunch
- Congress kit
- Certificate of attendance

## REGISTRATION

Online registration on:

[www.leanevent.it/bionic\\_limb\\_reg/](http://www.leanevent.it/bionic_limb_reg/)

## PAYMENT

- CREDIT CARD
- PAYPAL
- BANCOMAT OR BANK TRANSFER (ONSITE)

The proforma invoice will be sent immediately at your email address.

## CANCELLATION

Cancellations must be communicated in writing via email to the Organizing Secretariat. For cancellations received before **October 8<sup>th</sup>**, the deposit paid will be refunded, net of agency fees (€ 30.00). After this term, no refund is foreseen. The refund will be made at the end of the Congress.



## ITALIAN CME CREDITS

CME PROVIDER: I&C SRL- No. 5387- 394054

Credits awarded: **13,9**

Training hours: **13 hours**

I&C is responsible for the contents, the quality and ethical appropriateness of this CME activity.

The Congress will be accredited for the following professionals **Physicians, Physioterapists, Biomedical Laboratory Technician, Orthopedic Technician.**

**Disciplines Physicians: Traumatology and Orthopedics, Plastic Surgery, Diagnostic Radiology, Anatomical Pathology, General Surgery, Infectious Diseases, Neurology, Physical Medicine and Rehabilitation, Neurosurgery.**

Only attendees working in the above disciplines will be entitled to educational credits.

Places available: **50**

## METHODOLOGY

Residential

## EDUCATIONAL OBJECTIVE

3-Clinical documentation. Diagnostic, rehabilitation and clinical care, pathways, care profiles - treatment profiles.

## ASSESSMENT QUESTIONNAIRE

Online multiple-choice questionnaire. Guidance regarding the publication of documentation will be provided on site. To earn CME credits for this event, it is mandatory to: physically attend 90% of the training activities, correctly answer at least 75% of questions included in the learning assessment questionnaire, complete the residential training event evaluation form and the I&C (quality and training needs) questionnaire. Warning: Please note that the questionnaire will be available online for 3 (three) days after the end of the Congress.

## OFFICIAL LANGUAGE

English is the official language of the Course. Simultaneous translation is not provided.

## ORGANIZING SECRETARIAT AND CME PROVIDER



**I&C srl- ID 5387**

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