



Gruppo Nazionale di Bioingegneria

# XLI ANNUAL SCHOOL BIOMEDICAL ENGINEERING FOR SUSTAINABLE DEVELOPMENT

**SEPTEMBER 12-15, 2022**

AULA MAGNA, CASA DELLA GIOVENTÙ  
UNIVERSITARIA, UNIVERSITÀ DI PADOVA,  
VIA RIO BIANCO, 12, 39042 – BRIKEN (ITALY)  
& ON-LINE



## SCIENTIFIC ORGANIZERS:

**ARTI AHLUWALIA** – UNIVERSITY OF PISA  
**LEANDRO PECCHIA** – UNIVERSITY OF WARWICK  
**STEFANO SEVERI** – UNIVERSITY OF BOLOGNA  
**CARMELO DE MARIA** – UNIVERSITY OF PISA

**LOCAL ORGANIZER:** BIOENGINEERING NATIONAL GROUP (GNB)  
**ORGANISING SECRETARY:** PRAGMA CONGRESSY (PAVIA)

## Speakers

**A. AHLUWALIA** (UNIVERSITY OF PISA, ITALY)  
**D. VITO** (METABOLISM OF CITIES LIVING LAB, SAN DIEGO STATE UNIVERSITY, CALIFORNIA)  
**L. DI PIETRO** (IMED, SWITZERLAND)  
**A. STEFANINI** (WHO CONSULTANT)  
**P. MAKOBRE** (UNIVERSITY OF CALGARY, CANADA)  
**L. PECCHIA** (UNIVERSITY OF WARWICK, UK - UNIVERSITY CAMPUS BIO-MEDICO, ITALY)  
**V. MANGANO** (UNIVERSITY OF PISA, ITALY)  
**C. DE MARIA** (UNIVERSITY OF PISA, ITALY)  
**S. SEVERI** (UNIVERSITY OF BOLOGNA, ITALY)  
**C. GIULIANI** (CORAX, ITALY)  
**C. PERAZZINI** (IBD, ITALY)  
**A. DIAZ LANTADA** (UNIVERSIDAD POLITECNICA DE MADRID, SPAIN)  
**R. CASTALDO** (UNIVERSITY OF WARWICK, UK)  
**G. SIGNORINI** (POLYTECHNIC OF MILAN, ITALY)  
**D. PIAGGIO** (UNIVERSITY OF WARWICK, UK)  
**V. CALDERAI** (UNIVERSITY OF PISA, ITALY)  
**D. ATWINE** (MBARARA UNIVERSITY OF SCIENCE AND TECHNOLOGY, UGANDA)  
**G. FICO** (UNIVERSIDAD POLITENICA DE MADRID, SPAIN)  
**E. IADANZA** (UNIVERSITY OF FIRENZE, ITALY)  
**L. GURBETA POKVIC** (UNIVERSITY OF SARAJEVO, BOSNIA AND HERZEGOVINA)  
**A. VELAZQUEZ BARUMEN** (WHO)

**With the support of**



## Registration

For registration, please access the following link:  
<https://soci.grupponazionalebioingegneria.it/utenti/front/accedi>

GNB members*		
Participants	Early bird registration by July 15, 2022	From July 16, 2022
PHYSICAL ATTENDANCE		
Academic staff	300€	350€
PhD student	140€	170€
One day registration	-	100€
VIRTUAL ATTENDANCE		
Academic staff	110€	140€
PhD student	60€	80€

NON-GNB members*		
Participants	Early bird registration by July 15, 2022	From July 16, 2022
PHYSICAL ATTENDANCE		
Academic staff	420€	480€
PhD student	200€	240€
PhD student from LMIC	50€	50€
Graduate student	120€	150€
One day registration	-	130€
VIRTUAL ATTENDANCE		
Academic staff	210€	240€
PhD student	120€	140€
PhD student from LMIC - light	25€	30€
Graduate students	50€	70€
Graduate students light	25€	30€

\*GNB REGULAR MEMBERSHIP 50 €, GNB STUDENT MEMBERSHIP 30 €  
TO REGISTER AS A GNB MEMBER, GNB MEMBERSHIP CODE IS REQUIRED IN THE REGISTRATION FORM. TO BECOME GNB MEMBER, PLEASE VISIT:  
[HTTPS://SOCI.GRUPPONAZIONALEBIOINGEGNERIA.IT/UTENTI/FRONT/ACCEDEI](https://soci.grupponazionalebioingegneria.it/utenti/front/accedi).  
ALL THE REGISTRATION FEES, EXCEPT FOR "GRADUATE STUDENTS LIGHT" AND "PHD STUDENT FROM LMIC LIGHT", INCLUDE THE SCHOOL PROCEEDINGS BOOK, PUBLISHED BY PATRON.

ALL REGISTRATION FEES INCLUDE VAT.



# XLI ANNUAL SCHOOL

## Aim of the School

This school aims to offer students an alternative view and approach to the problems and applications of biomedical engineering, from the perspective of low-middle income countries (LMICs) and rural contexts. Actually, those applications are not limited to LMICs, but also to other contexts where resources may be lacking (e.g. natural disasters, epidemics, pandemics). The school will follow a "hands-on" teaching approach that allows students to explore the salient steps of medical device design starting with the analysis of needs, classification according to European legislation for medical devices and then identification of the standards using the UBORA platform, to guide and support the design process.



# Program

**Monday, 12-09-2022**

## Need assessment and life cycle of a medical device

Introduction: program and objectives of the school. Overview on global health	<b>Arti Ahluwalia</b> (University of Pisa)
Biomedical Engineering and sustainable development goals	<b>Domenico Vito</b> (San Diego State University)
Life cycle of medical devices: regulations in a worldwide market	<b>Licia Di Pietro</b> (1MED)
Keynote: Healthcare in low resources settings	<b>Angelo Stefanini</b> (WHO Consultant)
Needs assessment in low resources settings and the role of biomedical engineers	<b>Philippa Makobore</b> (University of Calgary)
Biomedical and clinical engineers' contribution during pandemics toward global health	<b>Leandro Pecchia</b> (University of Warwick)
Case study: Medical Technologies for combatting malaria	<b>Valentina Mangano</b> (University of Pisa)
Introduction to UBORA and working groups creation	<b>Carmelo De Maria</b> (University of Pisa)

**Tuesday, 13-09-2022**

## Innovation (part 1)

Reverse and frugal innovation	<b>Stefano Severi</b> (University of Bologna)
Case study: Start-up companies for accessible healthcare	<b>Caterina Giuliani</b> (Corax) <b>Corrado Ghidini</b> (IBD)
Key enabling design and manufacturing technologies for open-source medical devices	<b>Andres Diaz Lantada</b> (University of Madrid)
Case Study: AI for Pneumonia detection in LMICs	<b>Rossana Castaldo</b> (University of Warwick)
Case Study: Medical Device solution for Maternal Health	<b>Gabriella Signorini</b> (Polytechnic of Milan)
Case Study: BAMBI: Ballon Against (post-partum) Maternal Bleeding	<b>Maria Laura Costantino</b> (Polytechnic of Milan)
Group Work	

**Wednesday, 14-09-2022**

## Innovation (part 2)

Use of smartphones for frugal innovation: guided hands on (Part 1)	<b>Davide Piaggio</b> (University of Warwick)
Use of smartphones for frugal innovation: guided hands on (Part 2)	<b>Davide Piaggio</b> (University of Warwick)
Right to the access to safe medical technologies	<b>Valentina Calderai</b> (University of Pisa)
Implementing a clinical study in low resources settings	<b>Daniel Atwine</b> (Mbarara University of Science and Technology)
Safety and security in smartphone applications	<b>Giuseppe Fico</b> (University of Madrid)
Group Work	

**Thursday, 15-09-2022**

## Management of medical technologies

Management and maintenance of medical technologies in low resources settings	<b>Ernesto Iadanza</b> (University of Siena)
AI for medical device maintenance and metrology in LMICs: the case of Bosnia and Herzegovinian	<b>Lejla Gurbeta Pokvic</b> (International Burch University)
GNB Award Ceremony	
Innovative health technologies for low resource settings	<b>Adriana Velazquez Barumen</b> (WHO)
Group Presentation	
Award ceremony and closing remarks	

**Friday, 16-09-2022**

GNB General Assembly*	for GNB members only
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\*GNB GENERAL ASSEMBLY WILL BE HELD IN A BLENDED MODALITY. DETAILS FOR PARTICIPATING IN THE ASSEMBLY WILL BE PROVIDED DIRECTLY TO MEMBERS