



INTERNATIONAL SOCIETY FOR MECHANICAL CIRCULATORY SUPPORT

**BOLOGNA
ITALY**

Royal Carlton Hotel

**OCTOBER
21-23
2019**



27th ANNUAL MEETING
of International Society
for Mechanical Circulatory Support

www.ismcs.org

Under the patronage of



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
SCUOLA DI MEDICINA E CHIRURGIA

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Cardiac Surgery Department
University of Bologna
Italy

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Austria

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ISMCS 2019 ENDORSED BY



SCIENTIFIC PROGRAM

OCTOBER 20

08.00-11.30 EXECUTIVE BOARD MEETING
(for Executive Board Members only)

*The meeting will take place
at Royal Carlton Hotel - Venere Room*

13.00-17.00 BOARD MEETING
(for Extended Board Members only)

*The meeting will be hosted by
Società Medica Chirurgica di Bologna
Palazzo dell'Archiginnasio - P.zza Galvani, 1*

OCTOBER 21 - Imperiale Hall

07.45-10.00 Young Investigators Pre-Symposium

CHAIRS: T. KAUFMANN, T. SCHLÖGLHOFER

- PS-1 From silk road to blood pumps: developing MCS in China
P.L. Hsu
- PS-2 MCS in the Indian Scenario: Challenges & its Future
D. SODHANI
- PS-3 Sensor and sensor-less systems for physiological control of VADs: Where to next?
A. STEPHENS
- PS-4 The YIN and YANG of LVAD optimization: when quality of life matches flow watts and waves
S. BOSCHI
- PS-5 Small patients, huge demand? Pediatric MCS programs
S. BHAVSAR
- PS-6 Pre-operative imaging to address operational challenges in small Japanese patients
S. SONNTAG
- PS-7 "Tools" in the Tool Box: What MCS Clinicians Have (and Don't Have) to be Successful in Today's World
S. SCHROEDER
- PS-8 Evaluation of peripheral circulation and its pulsatility under circulatory assist with continuous-flow left ventricular assist device
J. SHIMAMURA

OCTOBER 21 - Imperiale Hall

10.00-10.30 ISMCS Opening Ceremony

CHAIRS: C. SIVATHASAN, D. PACINI

WELCOME BY ISMCS 2019 CONFERENCE PRESIDENT

A. LOFORTE

ISMCS PRESIDENTIAL ADDRESS

F. MOSCATO

10.30-11.30 H. REUL Session

CHAIRS: U. STEINSEIFER, M. SLEPIAN, M. MACCHERINI

- Thermal safety of a transcutaneous energy transfer system for ventricular assist devices
S.L.C. Au (NEW ZEALAND)
- Aortic regurgitation in heart failure patients after Abiomed Impella-device implantation
A. NEMETH (GERMANY)
- LVAD speed increase at exercise: insights from a computational cardio-respiratory simulator
C. GROSS (AUSTRIA)
- Hemolysis evaluation of a rotary blood pump at low-flow conditions for ECMO/ECCO2R applications
M. SCHÖPS (GERMANY)
- Visualizing red blood cell exclusion in a spiral groove bearing gap using erythrocyte ghosts and particle image velocimetry
S. BIERITZ (USA)

11.30-12.30 Keynote Lecture I

CHAIRS: M. LOEBE, A. LOFORTE

PIONEERING MECHANICAL CIRCULATORY SUPPORT (EUROPE) • R. HETZER

PIONEERING MECHANICAL CIRCULATORY SUPPORT (USA) • O.H. FRAZIER

12.30-13.00 Round Table I

WHY AND HOW TO DEVELOP A VAD PROGRAM, GET CONSCIENCE, AND IMPROVE THE RUNNING BY TIME

CHAIR: W. DEMBITSKY

LECTURE: S. MALTAIS

COMMENTS: M. ONO, L. POTENA, P. MOHACSI, D. CHRISTENSEN

13.00-13.30 ISMCS Welcome by Authorities

CHAIRS: A. LOFORTE, R. DI BARTOLOMEO, M. GARGIULO

- EMILIA ROMAGNA REGION HEALTH COUNCILLOR
- BOLOGNA UNIVERSITY DEAN
- S.ORSOLA HOSPITAL GENERAL HEAD

13.30-14.30 Lunch MCS Symposium I

CHAIRS: A. SIMON, M. MASSETTI

- Pulsatility: 'Argument for' and 'Biologic Consequences Without'
M. SLEPIAN
- Haemodynamics of pulsatile and continuous flow pumps
H. SCHIMA
- The return to the pulse with current centrifugal pumps: clinical implications
W. DEMBITSKY
- Do we think we can improve outcomes with adding pulsatility to our pulseless pumps?
G. WIESELTHALER

14.30-15.00 Invited Lectures

DEVICE DEVELOPMENT

CHAIRS: V. TCHANTCHALEISHVILI, M. SLAUGHTER, T. TSUKIYA

- MCS development: from design to commercial availability
U. STEINSEIFER
- Pushing towards a 'mechanical' rotary Total Artificial Heart concept
D. TIMMS
- Pushing towards a 'biological' Total Artificial Heart concept
G. GEROSA

15.00-16.30 Selected Abstracts 1

DEVICE DEVELOPMENT

CHAIRS: V. TCHANTCHALEISHVILI, K. FUKAMACHI, V. TARZIA

- A total artificial heart as a physiological sensor
M. DIEDRICH (GERMANY)
- Experimental validation of the fluid-structure interaction simulation of an implantable total artificial heart (CARMAT-TAH)
F. DE GAETANO (ITALY)
- A ventricular decompressing apparatus with percutaneous catheters & paracorporeal pumping; using robotic materials to create intracorporeal & extracorporeal loops enabling simultaneous ventricular assist & ECMO
K. V. SINGRU (INDIA)
- Reproducible model for chronic stable heart failure in ovine species
C. TORREGROZA (GERMANY)

OCTOBER 21 - Imperiale Hall

- Population based engineering to treat the maximum number of patients
S. SONNTAG (GERMANY)
- Compact linear peristalsis: non-pneumatic peristaltic occlusion as a mechanism for blood propulsion
M. SLEPIAN (USA)
- Universal ventricular assist device for right and left circulatory support
J. KARIMOV (USA)
- Evaluation of intraventricular flow dynamics with a short-term intraventricular balloon pump
A. BOONE (AUSTRALIA)
- A new point-of-care microfluidic device for the assessment of residual platelet reactivity in patients on antiplatelet therapy
S. BOZZI (ITALY)

16.30-16.50 Coffee & Poster Exhibition 1

16.50-17.20 Keynote Lecture II

CHAIRS: L. POTENA, M. LOEBE

HEART REPLACEMENT THERAPY: MECHANICAL, BIOLOGICAL OR REGENERATIVE?

D. TAYLOR / COMMENT BY M. LOEBE

17.20-18.00 Invited Lectures

PARTIAL SUPPORT

CHAIRS: L. HUNZIKER, C. RUSSO, L. CAREDDU

- Surgical or percutaneous interventional treatment?
B. MEYNS
- Percutaneous VADs: options
G. LEBRETON
- Novel solutions and applications
A. FIANE
- Miniature LA Assist Device (VADovations)
K. DASSE

18.00-19.00 Selected Abstracts 2

PARTIAL SUPPORT AND FULL VAD SUPPORT

CHAIRS: T. SIESS, L. HUNZIKER, M. ATTISANI

- Long term support by a partial support device
A. BARBONE (ITALY)
- Impella supported cardiac surgery
P. MASIELLO (ITALY)
- Revivent less invasive left ventricular enhancement (live): single center mid-term results
P. KLEIN (NETHERLANDS)
- Different profiles, in patients implanted with last generation centrifugal pump, identified according to a new hemodynamic index
A. MONTALTO (ITALY)
- First acute in vivo experience with EverHeart LVAD
G. ABER (USA)
- Minimally invasive implantation of left ventricular assist devices: a tool to increase survival in women
S. MARIANI (GERMANY)

19.00-20.00 Poster Exhibition 2

19.00-20.00 ISMCS General Assembly

(all ISMCS members are invited to participate)

OCTOBER 22 - Imperiale Hall

08.00-09.00 Invited Lectures

SHORT-TERM MCS AND ECLS

CHAIRS: F. MUSUMECI, A. EL BANAYOSY, A. OUATTARA

- ELSO registry report: perspectives
R. LORUSSO
- Cardiogenic shock: ECLS treatment strategies
F. PAPPALARDO
- Recovery from cardio-pulmonary shock with short-term circulatory support: driving the needle forward
E. RAME
- Beyond ECLS - Transition to implantable long-term LVAD
D. SAEED
- Donor hearts preservation and assessment with Organ Care System
S. TSUI
- Extracorporeal Circulation Circuits in Surgery: look at History to get the Present
L. DI MARCO

09.00-10.00 Selected Abstracts 3

SHORT-TERM MCS AND ECLS

CHAIRS: S. SONNTAG, A. MONTALTO, S. MARTIN-SUAREZ

- Outcome of heart transplantation in short and long-term assistance device patients: cold storage vs ex-vivo normothermic perfusion
S. SPONGA (ITALY)
- Left ventricular unloading during peripheral extracorporeal membrane oxygenator support (ECMO): a bridge to life in profound cardiogenic shock
M. ATTISANI (ITALY)
- Elective institution of ECLS for primary PCI is associated with improved outcomes. A single center experience
G. BIANCHI (ITALY)
- Bridge to heart transplantation using the Levitronix CentriMag short-term ventricular assist device - A 10-years single-centre experience
D. SEF (UK)

- Experience with true percutaneous veno-pulmonary extracorporeal membrane oxygenation as right ventricular temporary support following left ventricular assist device insertion
Y. JOSHI (AUSTRALIA)
- Platelet function tests in VA ECMO patients - Can we read between the lines?
D. HAXHIADEMI (ITALY)

10.00-10.30 Selected Abstracts 4

PATIENT CARE

CHAIRS: T. TSUKIYA, S. SCIACCA, E. PILATO

- Rehabilitation-related outcomes in patients with LVADs: functional capacity, disability, and quality of life
M. POLASTRI (ITALY)
- Echocardiographic assessment of right ventricular failure in continuous flow LVAD patients: a systematic review and meta-analysis of observational studies
M. BENEDETTO (ITALY)
- Awake extracorporeal membrane oxygenation (ECMO) in patients with refractory cardiogenic shock
K. UMAKUMAR (UK)

10.30-11.00 Coffee & Poster exhibition 3

11.00-12.00 Invited lectures

LONG-TERM VAD

CHAIRS: A. LOFORTE, S. SCHUELER, C. AMARELLI

- Concomitant Cardiac Surgery procedures in need during LVAD implantation
W. DEMBITSKY
- Minimally-invasive LVAD implantation: should we adopt it as standard?
G. DOGAN
- How to deal with preoperative and postoperative RV function
D. ZIMPFER
- Continuous-flow BVAD: feasible and reliable?
E. POTAPOV
- LVAD hemodynamic optimization
C. MAHR

OCTOBER 22 - Imperiale Hall

12.00-12.30 Keynote lecture III

CHAIRS: C. SIVATHASAN, G. FAGGIAN

HEART TRANSPLANTATION VS. MECHANICAL CIRCULATORY SUPPORT: CURRENT PERSPECTIVES

M. SLAUGHTER / COMMENT BY M. FRIGERIO

12.30-13.00 Round table II

MCS REGISTRIES IN THE WORLD

CHAIR: B. MEYNS

INTERMACS/STS, EUROMACS, MCS Asia/Pacific, MCS in Japan

R. KORMOS, T. DE BY, C. SIVATHASAN, K. DASSE, M. ONO, F. GRIGIONI

13.00-13.30 Poster exhibition 4

13.30-14.30 Lunch MCS Symposium II Medtronic

Sponsored by Medtronic through an Unrestricted Educational Grant

CHAIRS: C. MAHR, L. KLEIN, M. PILATO

- LVAD adverse events: still a debate
A. SIMON
- Tips and tricks for VAD placement and removal
E. POTAPOV
- Adult LVAD systems reliability for pediatric population
A. LORTS
- LVAD concept as monitoring system
F. MOSCATO
- Telemonitoring and smart systems I
L. KLEIN

14.30-15.20 Invited lectures

HEMOCOMPATIBILITY

CHAIRS: G. WIESELTHALER, M. SLEPIAN, U. LIVI

- "It's Hemocompatibility", "Not Thrombosis and/or Bleeding"
M. SLEPIAN
- AVWS and beyond
C. BARTOLI
- Biocompatibility of current continuous and pulsatile pumps
I. NETUKA
- Human Interface and Usability associated with MCS
T. SCHLÖGLHOFER

15.20-16.30 Selected abstracts 5

HEMOCOMPATIBILITY

CHAIRS: J. KARIMOV, U. KERTZSCHER, A. IACOVONI

- Investigation of blood flow and thrombosis within oxygenators using x-ray particle image velocimetry
I. PINAR (AUSTRALIA)
- Von Willebrand factor size and function predict the risk of LVAD-associated bleeding
S. HENNESSY-STRAHS (USA)
- Platelet transcriptome in advanced heart failure patients following mechanical unloading
A. KOLIPOPOULOU (USA)
- Standardizing MCS testing loop design: effect of constituent components on overall system thrombogenicity
M. SLEPIAN (USA)
- Inflow cannula design impacts to hemocompatibility related adverse events
T. MOTOMURA (USA)
- Influence of different antithrombotic regimens on prothrombotic platelet function in patients on mechanical circulatory support with left ventricular assist device
F. CONSOLO (ITALY)
- The effect of shear rate and exposure time on the formation size of human platelet aggregations
M. INOUE (JAPAN)

16.30-16.50 Coffee & Poster exhibition 5

16.50-17.20 Keynote lecture IV

CHAIRS: P. LEPRINCE, G. GEROSA

REGENERATIVE MEDICINE AND 3D BIOPRINTING FOR HUMAN SPACE EXPLORATION AND PLANET COLONISATION

T. GHIDINI

OCTOBER 22 - Imperiale Hall

17.20-18.10 Invited lectures

TOTAL ARTIFICIAL HEART

CHAIRS: P. LEPRINCE, G. GEROSA

- Total Artificial Heart: temporary bridge or definitive solution?
J. COPELAND
- New Total Artificial Heart Systems
P. LEPRINCE
- The 'Cleveland' TAH concept
K. FUKAMACHI
- The Zurich experience with two different BVAD strategies
M. WILHELM

18.10-19.30 Selected abstracts 6

LONG-TERM LVAD & BIVAD

CHAIRS: D. TIMMS, M. MASETTI, G. DI GIAMMARCO

- Minimally invasive off pump left ventricular assist device implantation in redo patients with extrapericardial approach
M. ATTISANI (ITALY)
- Right atrial vs right ventricular HeartWare HVAD placement in patients with left-sided HeartWare HVAD: a systematic review
T. J. O'MALLEY (USA)
- Nine-year single-center experience with the HeartWare left ventricular assist device system
A. DELL'AQUILA (GERMANY)
- Outflow graft twist occlusion in the HeartMate 3 left ventricular assist system in 7 cases: analysis of potential mechanisms using computed tomography
N. SOLOWJOWA (GERMANY)
- Continuous-flow left ventricular assist device outflow graft stenting: indications and outcomes
C. T. WOOD (USA)
- Two year follow-up after left ventricular assist device exchange to HeartMate 3
G. DOGAN (GERMANY)
- Concomitant cardiac procedures during implantation of long-term continuous-flow LVADs: a EUROMACS analysis
G. GLIOZZI (ITALY)
- Results of primary biventricular support: an analysis of data from the EUROMACS-registry
J. VIERECKE (USA)

20.30 Conference Dinner (Awards)

OCTOBER 23 - Imperiale Hall

08.00-09.00 Invited lectures

PEDIATRICS

CHAIRS: G. GARGIULO, C. PACE NAPOLEONE,
A. LORTS, P. WEARDEN

- PEDIMACS Registry: outcomes
A. LORTS
- Total Artificial Heart therapy in pediatrics
M. SCHWEIGER
- An open window towards permanent support with infant pumps
A. AMODEO
- Pediatric VAD outpatients management
J. CONWAY
- Heart Transplantation or MCS in congenital heart disease?
A. HASAN

09.00-10.00 Selected abstracts 7

PEDIATRICS

CHAIRS: M. SCHWEIGER, L. GALLETTI, E. ANGELI

- Does axial flow confer an advantage to adult congenital heart disease transplant candidates?
A. LORTS (USA)
- Outcomes of continuous-flow ventricular assist devices in children: a single-centre experience
J. ABDULLAH (UK)
- Twenty years of paediatric venoarterial ECMO
M.T. CASCARANO (ITALY)
- Age-based differences in Bivalirudin dose requirements for pediatric extracorporeal circulatory support devices
J. TERUYA (USA)
- Novel paediatric rotary blood pump sputnik
M. DENISOV (RUSSIAN FEDERATION)
- Hemolysis testing and acute animal experiment of next generation ultra-compact centrifugal pediatric VAD with full magnetic levitation
M. OSA (JAPAN)

10.00-10.20 Coffee & Poster exhibition 6

10.20-10.50 Keynote lecture V

CHAIRS: A. LORTS, M. PADALINO, J. KARIMOV

HISTORY AND INNOVATIONS IN PUMP DEVELOPMENT FOR CONGENITAL HEART DISEASE

K. DASSE

10.50-11.30 Invited lectures

SIMULATION

CHAIRS: M. SLEPIAN, M. FECCIA, G. TANSLEY

- CFD blood flow simulation: strengths and limitations
A. REDAELLI
- Impact of LVAD cannulation on blood flow and stagnation
A. ALISEDA
- Challenging solutions in congenital heart disease
M. GRANEGGER

11.30-13.00 Selected abstracts 8

SIMULATION

CHAIRS: M. GRANEGGER, G. TANSLEY, M. FECCIA

- Asynchronous ventricular volume change during continuous-flow left ventricular assist device support
J. SHIMAMURA (JAPAN)
- Implications of LVAD supported intraventricular flows
S. LIAO (AUSTRALIA)
- Numerical analysis of hemodynamic-related thrombogenic potential of the HeartMate 3 and HeartWare HVAD: mechanistic insights into observed clinical outcomes
F. CONSOLO (ITALY)
- Towards an implantable lung - Using multiscale simulations to evaluate possible connection options
K. HUGENROTH (GERMANY)
- CFD blood flow simulation: strengths and limitations
A. REDAELLI (ITALY)
- Investigation of pump speed modulation and its timing on the risk of ventricular thrombosis
T. KHIEWAD (AUSTRIA)
- Investigation of the apical flow field under left ventricular assist device support
M. GHODRATI (AUSTRIA)

OCTOBER 23 - Imperiale Hall

- Intraoperative use of 3D printed exoskeleton in LVAD inflow cannula positioning-first in human cases
I. HARTYANSZKY (HUNGARY)
- Spiral-Flow-Generated Circulatory Mechanical Assistance
J.Y. KRESH (USA)

13.00-14.00 Lunch MCS Symposium III Abbott

CHAIRS: A. EL BANAYOSY, M. FRIGERIO

- LVAD therapy: long-term outcomes and challenges
R. KORMOS
- Technical solutions in congenital heart disease
A. HASAN
- LVAD therapy for all?
W. DEMBITSKY
- Myocardial Recovery: What Have We Learned and Future Directions
S. DRAKOS
- Telemonitoring and smart systems II
K. BOURQUE

14.00-14.30 Keynote Lecture VI

CHAIRS: F. MOSCATO, T. MASUZAWA

NEUROPROSTHETICS AND BIONICS, FROM FICTION TO SCIENCE
S. MICERA

14.30-16.15 Invited lectures

DEVICES UPDATE

CHAIRS: K. DASSE, M. ONO, M. BAIOCCHI

- Abbott - K. BOURQUE
- Abiomed - T. SIESS
- Berlin Heart - J.C. WOODARD
- BioVentric - T. PILLAY
- CorWave - C. BOTTERBUSCH
- Eurosets - M. BELLIATO
- Evaheart - T. MOTOMURA
- Jarvik Heart-Leviticus Cardio - P.W.J. HINCHLIFFE
- Medtronic - N. VOSKOBOYNIKOV
- Torvad - J. GOHEAN, E. LARSON
- CH Biomedical - J. TEAL

16.15-16.35 Coffee & Poster exhibition 7

16.35-17.25 Invited lectures

SMART PUMPING, MONITORING, CONTROL

CHAIRS: H. SCHIMA, F. CONSOLO, G. TANSLEY

- Exercise limitations in LVAD patients: insights from hemodynamic simulations
L. FRESIELLO

- In-vitro modelling for pump control evaluation: strengths and limitations
S. GREGORY
- Elimination of driveline: transcutaneous energy transmission projects
S. SCHUELER
- New Technologies and wearables for MCS
M. SLEPIAN

17.25-18.55 Selected abstracts 9

SMART PUMPING, MONITORING, CONTROL

CHAIRS: J. KARIMOV, F. CONSOLO, L. BOTTA

- Development of a percutaneous access device for preventing driveline infection
T. MOTOMURA (USA)
- Evaluation of the pulse wave from the face of the patients with rotary blood pump in the outpatient clinic
T. YAMBE (JAPAN)
- Quantification of circadian loss in HVAD patients using controller log file data
V. RAMOS (USA)
- HVAD log files: pump power signature
N. VASUDEVAN (USA)
- Time-frequency analysis of the LVAD log files enhances early diagnosis of pump thrombosis
F. CONSOLO (ITALY)
- Changes in waveforms during six minutes walking test in patients with H-VAD: a new marker of functional capacity
S. BOSCHI (ITALY)
- Pressure estimation with the TORVAD using a model-based Kalman filter
J. GOHEAN (USA)
- The role of time in therapeutic range (TTR) of anticoagulation in reducing thrombosis' risk in LVAD patients
M. MASETTI (ITALY)
- Evolution and clinical adoption of the autologs system, an automated analysis for enhanced patient management
M. BROWN (USA)

19.00-19.15 Closing ceremony

A. LOFORTE, A. EL BANAYOSY

ISMCS/ICCAC MCS

PROFICIENCY VERIFICATION COURSE

08.00-12.00

CHAIRS

T. Schlöglhofer (Wien, Austria)
D. Christensen (Philadelphia, PA, USA)

FACULTY

T. Berg (Aachen, Germany)
F. Kaufmann (Berlin, Germany)
L. Klein (San Francisco, CA, USA)
A. Loforte (Bologna, Italy)
C. Mahr (Seattle, WA, USA)
M. Masetti (Bologna, Italy)
B. Meyns (Leuven, Belgium)
I. Netuka (Prague, Czech Republic)
E. Potapov (Berlin, Germany)
S. Schroeder (Lincoln, NE, USA)
A. Thomas (Portland, OR, USA)
G. Wieselthaler (San Francisco, CA, USA)
D. Zimpfer (Vienna, Austria)

Target Participants

This course is intended for any healthcare professional who:

- has assumed a role on a multi-disciplinary MCS team
- cares for patients supported by MCS technology
- want to boost their functional knowledge on MCS problem solving

Registration fees

PHYSICIAN/ENGINEER

€ 120,00 + VAT (€ 146,40 VAT included)

NURSE

€ 80,00 + VAT (€ 97,60 VAT included)

HIGHLIGHTS

Small group problem based scenarios covering management and trouble shooting of common issues surrounding MCS devices

Small group exercises led by experienced VAD Coordinators, HeartFailure Cardiologists, and Cardiac Surgeons who specialize in MCS support

Devices covered in the scenarios include:

- o Medtronic HVAD
- o Abbott HeartMate 3
- o Abiomed Impella

All group exercises will be conducted in a manner that encourages participation by the attendees. Group interaction is the basis for success of this educational experience.

OBJECTIVES

The objectives of this course are designed to meet the Joint Commission's "Goals of Annual Competency" for MCS personnel.

- Review basic concepts surrounding MCS technology
- Review critical thinking skills necessary in assessment and management of patients supported by MCS technology
- Assessment of the participant's knowledge regarding the technical information and procedures required operating specific MCS devices
- Confirmation of proficiency of operation of specific MCS devices

	HVAD Medtronic Urano Room	HEARTMATE 3 Abbott Nettuno Room	IMPELLA Abiomed Marte Room
08.00-08.15	Session Instructions (Urano Room)		
08.15-09.15	S1 Session 1 S2 Session 1	S3 Session 1 S4 Session 1	S5 Session 1 S6 Session 1
09.15-09.30	Switch Rooms		
09.30-10.30	S1 Session 2 S2 Session 2	S3 Session 2 S4 Session 2	S5 Session 2 S6 Session 2
10.30-11.00	Coffee Break & Poster Exhibition		
11.00-12.00	S1 Session 3 S2 Session 3	S3 Session 3 S4 Session 3	S5 Session 3 S6 Session 3

CHAIRS: R. HETZER, M. LOEBE, A. LOFORTE

- 08.00-08.10 **Welcome Remarks**
R. HETZER
- 08.10-08.40 **Heart transplantation: does the heart last?**
R. HETZER
- 08.40-09.10 **VAD in heart failure in adults: Is myocardial recovery a realistic goal?**
M. DANDEL
- 09.10-09.40 **The mitral valve in heart failure: fix it or forget it?**
M. LOEBE
- 09.40-10.00 **Coffee break**
- 10.00-10.20 **VAD in heart failure in children: bridge to heart transplantation or myocardial recovery?**
E.M. JAVIER DELMO
- 10.20-10.40 **Heart failure: challenging cases and solutions**
A. LOFORTE
- 10.40-11.00 **Stem Cell application in heart failure: alternative to surgery?**
G. STEINHOFF
- 11.00-11.20 **Interventional transcatheter treatment procedures (Mitraclip, Cardioband, TAVI) in heart failure**
F. SAIA
- 11.20-11.40 **Hybrid transcatheter left ventricular reconstruction for the treatment of ischaemic cardiomyopathy**
M. BIFFI
- 11.40-12.00 **The anesthesiologist: role and view in treatment of heart failure**
M. BAIOCCHI
- 12.00-12.20 **Conventional cardiac surgery in patients with endstage coronary artery disease: yesterday and today**
H. HAUSMANN
- 12.20 **Experts' Discussion**

RHICS
17th Expert Forum

HEART FAILURE
SURGICAL OPTIONS

08.00-13.00

FACULTY

- M. Baiocchi (Bologna, Italy)
- M. Biffi (Bologna, Italy)
- M. Dandel (Berlin, Germany)
- H. Hausmann (Coswig, Germany)
- R. Hetzer (Berlin, Germany)
- E.M. Javier Delmo (Berlin, Germany)
- M. Loebe (Miami, FL, USA)
- A. Loforte (Bologna, Italy)
- F. Saia (Bologna, Italy)
- G. Steinhoff (Rostock, Germany)

INTERNATIONAL FACULTY

A. Aliseda (Washington DC, USA)
C. Amarelli (Naples, Italy)
A. Amodeo (Rome, Italy)
E. Angeli (Bologna, Italy)
M. Attisani (Turin, Italy)
M. Baiocchi (Bologna, Italy)
C. Bartoli (Philadelphia, PA, USA)
T. Berg (Aachen, Germany)
S. Bhavsar (Danvers, MA, USA)
M. Biffi (Bologna, Italy)
S. Boschi (Bologna, Italy)
L. Botta (Bologna, Italy)
K. Bourque (Charleston, SC, USA)
L. Careddu (Bologna, Italy)
D. Christensen (Philadelphia, PA, USA)
F. Consolo (Milan, Italy)
J. Conway (Alberta, Canada)
J. Copeland (San Diego, CA, USA)
M. Dandel (Berlin, Germany)
K. Dasse (Louisville, KY, USA)
T. De By (Windsor, UK)
W. Dembitsky (San Diego, CA, USA)
R. Di Bartolomeo (Bologna, Italy)
G. Di Giammarco (Chieti, Italy)
L. Di Marco (Bologna, Italy)
G. Dogan (Hannover, Germany)
S. Drakos (Salt Lake City, UT, USA)
A. El Banayosy (Oklahoma City, OK, USA)
G. Faggian (Verona, Italy)
M. Feccia (Rome, Italy)
A. Fiane (Oslo, Norway)
O.H. Frazier (Houston, TX, USA)
L. Fresiello (Leuven, Belgium)
M. Frigerio (Milan, Italy)
K. Fukamachi (Cleveland, OH, USA)
L. Galletti (Bergamo, Italy)
G. Gargiulo (Bologna, Italy)
M. Gargiulo (Bologna, Italy)
G. Gerosa (Padua, Italy)
T. Ghidini (The Hague, Netherlands)
M. Granegger (Zurich, Switzerland)
S. Gregory (Melbourne, Australia)
F. Grigioni (Rome, Italy)
A. Hasan (Newcastle, UK)

H. Hausmann (Coswig, Germany)
 R. Hetzer (Berlin, Germany)
 P.L. Hsu (Suzhou, China)
 L. Hunziker (Bern, Switzerland)
 A. Iacovoni (Bergamo, Italy)
 E.M. Javier Delmo (Berlin, Germany)
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 F. Kaufmann (Berlin, Germany)
 T. Kaufmann (Aachen, Germany)
 U. Kertzsch (Berlin, Germany)
 L. Klein (San Francisco, CA, USA)
 R. Kormos (Pittsburgh, PA, USA)
 E. Larson (Austin, TX, USA)
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 M. Masetti (Rome, Italy)
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 A. Montalto (Rome, Italy)
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 M. Ono (Tokyo, Japan)
 A. Ouattara (Bordeaux, France)
 C. Pace Napoleone (Turin, Italy)
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 A. Stephens (Melbourne, Australia)
 G. Tansley (Goald Coast, Australia)
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 D. Taylor (Houston, TX, USA)
 V. Tchanchaleishvili (Philadelphia, PA, USA)
 A. Thomas (Portland, OR, USA)
 D. Timms (Houston, TX, USA)
 S. Tsui (Cambridge, UK)
 T. Tsukiya (Osaka, Japan)
 P. Wearden (Orlando, FL, USA)
 G. Wieselthaler (San Francisco, CA, USA)
 M. Wilhelm (Zurich, Switzerland)
 D. Zimpfer (Vienna, Austria)

POSTERS

Saturno Room

1 • Fibonacci's golden ratio? A innovative approach to the design and management of extra-corporeal circulation

IGNAZIO CONDELLO (ITALY)

2 • Oversizing amplatzer device for aortic valve closure in patient with L-VAD, aortic regurgitation and dilated aortic annulus

FRANCESCA NICOLÒ (ITALY)

4 • Patients with surgical corrected TGA or congenital corrected TGA supported with durable VAD

MARTIN SCHWEIGER (SWITZERLAND)

5 • Perfusion quality score (P.Q.S) , pathophysiology items and algorithm solutions during cardiopulmonary bypass

IGNAZIO CONDELLO (ITALY)

10 • Comparison of hemolysis between a centrifugal pump and an axial-flow pump

TAKASHI YAMANE (JAPAN)

13 • Usefulness of the slope of the ventricular filling phase during Valsalva maneuver to assess non invasively left ventricular filling pressure in patients with heartware

ATTILIO IACOVONI (ITALY)

19 • Use of Protek Duo Cannula for percutaneous right ventricular support after heart transplant

MASSIMILIANO CARROZZINI (ITALY)

22 • Turbulence modeling of the FDA centrifugal rotary blood pump

CLAYTON SEMENZIN (AUSTRALIA)

24 • Simulation-based ECMO educational model

REZAN AL-JAFARY (AUSTRALIA)

29 • PVADs during debated high-risk PCI in patients with low-flow low-gradient aortic stenosis, impaired LV function and on hemodialytic treatment: a challenging case report about Impella management

GIUSEPPE COMENTALE (ITALY)

32 • A real-time hardware-in-the-loop testing approach of a cardiovascular system + TAH using bond graph technique: "a new way to test things" to improve MCS design

MARVIN SLEPIAN (USA)

34 • Importance of the inner shapes of tube in roller pump observed in micro CT, and importance of the fatigue tests

TOMOYUKI YAMBE (JAPAN)

35 • Cost-effective disposable centrifugal blood pump using a switched reluctance type bearingless motor

TADAHIKO SHINSHI (JAPAN)

38 • Continuous monitoring of arterial pressure and cardiac output via highly stretchable strain sensor: in-vitro and ex-vivo evaluation

KONSTANTINOS MAGKOUTAS (SWITZERLAND)

40 • Extracorporeal cardiopulmonary resuscitation. results of pilot project in UH olomouc

MARTIN SIMEK (CZECH REPUBLIC)

43 • A single centre experience with concomitant procedures performed during heartware LVAD insertion

SAM EMMANUEL (AUSTRALIA)

44 • Improved drainage cannula design to avoid thrombosis in veno-arterial ECMO

ASHKAN VATANI (AUSTRALIA)

45 • Reducing thrombosis in veno-venous extracorporeal membrane oxygenation: geometric improvements of dual lumen cannulas

SAM LIAO (AUSTRALIA)

49 • Downsizing of a pulsatile TAH - the effect of smaller inlet vales on the cardiac output

MORITZ LOMMEL (GERMANY)

50 • Assessment of cardiac recovery using a formal stepwise weaning protocol in patients supported with venoarterial extracorporeal membrane oxygenation

CASSANDRA HEANEY (USA)

51 • Cleavage and re-supply of Von Willebrand factor in continuous flow blood pump

TOSHIHIDE MIZUNO (JAPAN)

52 • Intra-aortic balloon pulsation with venoarterial extracorporeal membrane oxygenation for left ventricular unloading

THARUSHI D WANIGASEKARA (AUSTRALIA)

- 53 • Performance of simplified acute physiology score (saps ii score) in predicting short and mid-term survival in critically ill patients prior to LVAD implantation
ARASH MOTEKALLEMI (GERMANY)
- 54 • Additively manufactured magnets for the rapid evaluation of rotary blood pump impellers
MARTIN MAPLEY (AUSTRALIA)
- 57 • Ultrasound-based prediction of interventricular septum shift during left ventricular support
LUCIEN ANTHAMATTEN (SWITZERLAND)
- 58 • An ultra-compact ECMO system consisting of a novel centrifugal pump with hydrodynamic bearings and its long-term evaluation in animal experiments for up to 5 weeks
NOBUMASA KATAGIRI (JAPAN)
- 59 • Unexpected weaning from LVAD as bridge to transplant in ischemic cardiomyopathy
MASSIMILIANO CARROZZINI (ITALY)
- 60 • False heparin-resistance under extracorporeal membrane oxygenation support
JESUS RUIZ-ABAD (SPAIN)
- 61 • Outcomes of preexisting mechanical mitral valve after continuous-flow left ventricular assist device implantation: a systematic review
CHELSEY WOOD (USA)
- 62 • Psychological and philosophical thoughts on the heart and MCS, and the need of a comparative patient study
SABRINA HERREN (GERMANY)
- 63 • Results of innovative myocardial protection technique structured on cardiac mass indexed with echocardiographic patterns
IGNAZIO CONDELLO (ITALY)
- 66 • A comparison of novel developed centrifugal-flow and conventional pulsatile-flow extracorporeal left ventricular assist devices in patients with cardiogenic shock as bridge to candidacy for heart transplantation
TAKUYA WATANABE (JAPAN)
- 67 • Shear-mediated activation promotes platelet procoagulant activity and microparticle generation in pigs following short-term ECMO support
MARVIN SLEPIAN (USA)
- 69 • Downscaled test loop for assessment of LVAD-related blood damage
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- 71 • Dynamic extracorporeal membrane oxygenation: a new patient management modality in temporary circulatory support
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- 73 • Efficacy of low molecular weight heparin in a patient with long-term LVAD therapy: a case report
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- 74 • Transection of the proximal aorta to minimize antegrade embolic risk in patients with mechanical circulatory support
ELENA SANDOVAL (SPAIN)
- 75 • Venovenous extracorporeal membrane oxygenation as treatment for acute respiratory distress syndrome: S.Orsola Hospital experience
ERIKA DAL CHECCO (ITALY)
- 77 • A novel pediatric rotary blood pump for short-term support: preliminary results on hemolysis
MARCELO MAZZETTO (BRAZIL)
- 78 • Towards understanding when ECMO is futile
GIOVANNI CHIARINI (ITALY)
- 82 • In-vitro testing of a novel cardiac assist device: the intra-ventricular membrane pump
KOEN PEIJ (NETHERLANDS)
- 84 • Candidacy for heart transplantation in patients with pulmonary hypertension before LVAD implantation
M. ATTISANI (ITALY)
- 85 • Decreasing the incidence of driveline infections in patients supported on ventricular assist devices: a care pathway approach
JENNIFER CONWAY (CANADA)
- 86 • Long term follow up of patients receiving heart transplant following "bridge to transplant" LVAD implantation
GIULIA PINUCCIA PISANI (ITALY)
- 88 • Recent trends during 2015-2019 in the medical reimbursement system in Japan for new medical devices
EIKI AKAGAWA (JAPAN)
- 89 • Scoring calculations for patients on extracorporeal life support: potential prognostic predictors
CIRO AMODIO (ITALY)
- 90 • Ech-Mo-Simendan, successful and rapid approach in acute heart failure with cardiac hemochromatosis
DARIO BUIONI (ITALY)

POSTERS

Saturno Room

91 • Berlin Heart as bridge to transplant in pediatric population

LUCIO CAREDDU (ITALY)

92 • Hemocompatibility-related adverse events and physiological circulatory interface of different generation of left ventricular assist devices: a preliminary analysis

ANTONIO LOFORTE (ITALY)

94 • Computer-aided 3D planning and 3D printing in left ventricular assist device implantation

JÁNOS IMRE BARABÁS (HUNGARY)

95 • Simultaneous V-A ECMO and percutaneous temporary RVAD after repair of ischemic ventricular septal defect

SERGIO SCIACCA (ITALY)

96 • Mechanically supported early graft failure after cardiac transplantation: single centre experience

MARIAFRANCESCA FIORENTINO (ITALY)

97 • Development of the left atrial assist device for the treatment of heart failure with preserved ejection fraction

BARRY KUBAN (USA)

98 • Experimental determination of vascular pulsatility during pulsatile or continuous-flow LVAD assistance

SIMÃO BACHT (BRAZIL)

99 • Evaluation of hemolysis reduction by cell exclusion in a spiral groove hydrodynamic bearing

TOMOTAKA MURASHIGE (JAPAN)

101 • The lung unloading: extubated ECPPELLA as a strategy to reduce the impact of ECMO on transplant's outcome

CRISTIANO AMARELLI (ITALY)

102 • Bridge to recovery with the ECPPELLA philosophy in a case of fulminant myocarditis: 7 year follow-up

CRISTIANO AMARELLI (ITALY)

103 • The impact of donor on heart transplantation outcomes: a single center experience

GIACOMO MURANA (ITALY)

104 • Five years length BTT heartware LVAD support in thoracotomic approach - A case report

ALESSANDRO COSTETTI (ITALY)

105 • Right subclavian artery cutdown for implantation of Impella® 5.0 - Video

KABEER UMAKUMAR (UK)

108 • Toward a standard practice for the quantification of Von Willebrand factor multimer degradation during LVAD support

SAMSON HENNESSY-STRAHS (USA)

110 • Extracorporeal membrane oxygenation for short term "bridge to transplant" in patients in critical conditions: is it justified by post transplant results?

PASQUALE TOTARO (ITALY)

114 • Treatment of the harlequin syndrome during peripheral venoarterial ECMO

CARLO CONTENTO (ITALY)

115 • Hybrid treatment for ischaemic end-stage heart failure: the less invasive ventricular enhancement (live) technique

GIANLUCA FOLESANI (ITALY)

118 • Physical measurements of the impeller levitation height in centrifugal blood pump ReligaHeart ROT® with magneto-hydrodynamic rotor suspension

PRZEMYSŁAW KURTYKA (POLAND)

119 • Longue term outcome of dilated cardiomyopathy in pediatric age

CRISTINA CIUCA (ITALY)

121 • Complete artificial neo-aorta: a new treatment-option for aortic complex disease in the modern era

LUCA DI MARCO (ITALY)

122 • Heart transplantation and antibody-mediated rejection: role of the strain as an early marker of cardiac dysfunction in patients with anti-hla antibodies

BENEDETTA MARIA NATALI (ITALY)

125 • Left ventricular assist device: thrombolysis procedure for treatment of device thrombosis and role of the combined approach of 3D echocardiography and log-files analysis for the final diagnosis

TOMMASO LOIZZO (ITALY)

127 • Difficulties facing patients with LVAD in Saudi Arabia: 15-year single center experience

FERAS KHALIEL (SAUDI ARABIA)

129 • Veno Arterial (VA) ECMO in fulminant myocarditis: which is the best strategy to unload the left ventricle?

MATTEO ATTISANI (ITALY)

130 • Extracorporeal membrane oxygenation support after pulmonary endarterectomy in chronic thromboembolic pulmonary hypertension

GREGORIO GLIOZZI (ITALY)

131 • Increased risk of bleeding in LVAD patients treated with anticoagulant and antithrombotic therapy

TERESA QUAGLIARA (ITALY)

135 • The use of PICO in the treatment of driveline infections in a patient with LVAD: a case report

SILVIA BOSCHI (ITALY)

136 • Malnutrition is associated with right ventricular failure at the time of left ventricular device implantation

LIVIU KLEIN (USA)

140 • Concomitant aortic valve surgery in left ventricular assist device recipients: a european registry for patients with mechanical circulatory support (EUROMACS) analysis

CARLO MARIANI (ITALY)

141 • VAA ECMO: a hybrid cannulation strategy in a patient with severe peripheral arterial disease

JULIANE VIERECKE (USA)

144 • Role of clinical research manager in accomplishing investigator-initiated clinical trial for approval of extracorporeal centrifugal-flow ventricular assist system in patients with cardiogenic shock

NANA KITAHATA (JAPAN)

145 • Development of a custom mock circulatory loop for in-vitro study of patient specific aortic branches

EMANUELE GASPAROTTI (ITALY)

146 • Concomitant mitral valve surgery in left ventricular assist device recipients: a European registry for patients with mechanical circulatory support (EUROMACS) analysis

ANTONIO LOFORTE (ITALY)

147 • Combination of veno-arteriovenous extracorporeal membrane oxygenation and Impella 5.0 for cardiogenic shock with severe lung edema

TOMOKI USHIJIMA (JAPAN)

148 • Long term outcomes after mechanical circulatory support with Berlin Heart EXCOR: single center experience

ANTONINO S RUBINO (ITALY)

149 • Assessment of safety and effectiveness of the ultracompact ECMO system (br13030) use as a long-term cardiopulmonary support for severe heart and/or respiratory failure: study protocol for single-arm investigator-initiated clinical trial

NORIHIDE FUKUSHIMA (JAPAN)

150 • Study to evaluate erythrocyte's membrane oxidation during shear stress loading by centrifugal blood pump

YUKI UDONO (JAPAN)

152 • The results of experimental animal study of the first left ventricular assist device of Turkey: Istanbul Heart VAD (iHeart® VAD)

DENIZ SUHA KUCUKAKSU (TURKEY)

153 • Relation between inflow cannula position and neurological dysfunction in patients with HeartMate 3 left ventricular assist device

THOMAS SCHLÖGLHOFER (AUSTRIA)

154 • The vortex ring structure of the atrial flow field influences the ventricular flow pattern in the assisted heart

HEINRICH SCHIMA (AUSTRIA)

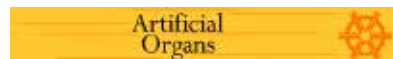
157 • Ball compression test: a novel means of assessing muscular function and frailty with application to heart failure

MARVIN SLEPIAN (USA)

158 • The oscillating plate pump - A novel blood pump concept

TIM BIEREWIRTZ (GERMANY)

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Editor-in-Chief
PAUL S. MALCHESKY, ENG D

GENERAL INFORMATION

CONGRESS VENUE

Royal Carlton Hotel

Via Montebello, 8 - 40121 Bologna (Italy)

The Hotel is in the centre of Bologna, just a short walk from Piazza Maggiore and the Two Towers.

How to get to Bologna

By Plane

Several airlines connect Bologna with many Italian and foreign cities.

The international airport "G. Marconi" is located just 5 km from the Congress Venue and the city centre, about 15 minutes by taxi.

Taxi: +39 051.372727 - +39 051 4950

By Train

The Bologna Central Station is one of the largest railway interconnections in both Italy and Europe. It is a 5 minutes walking from Royal Carlton Hotel.

By Car

The Royal Carlton Hotel is in the centre of Bologna, outside the restricted traffic zone.

From motorway A1, A13, A14: from the ring road exit n. 7 (Via Stalingrado) or exit Bologna Fiera direction city centre of Bologna.

To reach the Hotel using satellite navigation, it should be set for Via Milazzo 6 to avoid the restricted traffic zone.

A toll parking is available inside the hotel.

OFFICIAL LANGUAGE

The official language of the Congress is English.

REGISTRATION

Online registration at www.noemacongressi.it

Registration fees

CONGRESS

Physician/Engineer ISMCS Member

€ 450,00 + VAT (€ 549,00 VAT included)

Physician/Engineer ISMCS NON Member

€ 500,00 + VAT (€ 610,00 VAT included)

Nurse/Perfusionist/Resident

€ 190,00 + VAT (€ 231,80 VAT included)

Student

€ 105,00 + VAT (€ 128,10 VAT included)

1 Day Registration

€ 200,00 + VAT (€ 244,00 VAT included)

ISMCS/ICCAC MCS PROFICIENCY COURSE (MPV)

PHYSICIAN/ENGINEER

€ 120,00 + VAT (€ 146,40 VAT included)

NURSE

€ 80,00 + VAT (€ 97,60 VAT included)

Registration fee include

Congress

- Access to the Scientific sessions of the Congress
- Congress kit
- Certificate of attendance
- Coffee break and lunch

ISMCS/ICCAC MCS Proficiency Course (MPV)

- Access to the Course
- Course kit
- Certificate of attendance
- Coffee break

SOCIAL PROGRAM

Conference Dinner will take place on October 22, h. 20.30, at Palazzo Gnudi (Via Riva di Reno, 77).

Fee: € 45,00 + VAT (€ 54,90 VAT incl.)

HOTEL RESERVATION

It is possible to make an online reservation at www.noemacongressi.it together with the registration to the Congress.

A number of rooms have been booked for Congress participants at the hotels listed below.

ROYAL HOTEL CARLTON 4*

Via Montebello, 8 - 40121 Bologna

Ph.: +39 051 249361

DUS: € 139,00

Double: € 169,00

STARHOTEL EXCELSIOR 4*

Viale P. Pietramellara, 51 - 40121 Bologna

Ph.: +39 051 246178

DUS: € 150,00

Double: € 170,00

HOTEL INTERNAZIONALE 4*

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DUS: € 139,00

Double: € 169,00

HOTEL TRE VECCHI 4*

Via dell'Indipendenza, 47 - 40121 Bologna

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DUS: € 120,00

Double: € 140,00

HOTEL MERCURE BOLOGNA CENTRO 4*

Viale P. Pietramellara, 59 - 40121 Bologna

Ph.: +39 051 42211

DUS: € 125,00

Double: € 140,00

Rooms will be assigned on a first-come first-served basis depending on availability. Confirmation will be sent to each applicant.

Please note that tourist tax have to be paid directly at check-out.

Booking fee: € 25,00 + VAT (€ 30,50 VAT incl.).

AWARDS

Following tradition a number of awards are to be presented at the 27th Annual Meeting of the ISMCS in Bologna.

Helmut Reul Young Investigator Encouraging Award

This award is open to young investigators below 35 years old, who have submitted at least one successful abstract.

The top 5 scorers of the abstracts will make their presentations on Day 1, after the Opening Ceremony. The judges appointed by the Board will select the award winner. The winner will receive US \$1,000.

Sezai Award for innovation

The award is granted to the individual who contributes to the most innovative paper.

There is no age restriction for this award. The winner will receive US \$500

Asia Pacific ISMCS Young Investigator Award

This award is open to young investigators below 35 years old from Asia Pacific to promote rotary blood technology in Asia Pacific. The award will be based on scores given by the Organizing Committee.

ISMCS Poster Award

The best poster will be decided upon the judges selected from the Board members.

ICMT Award

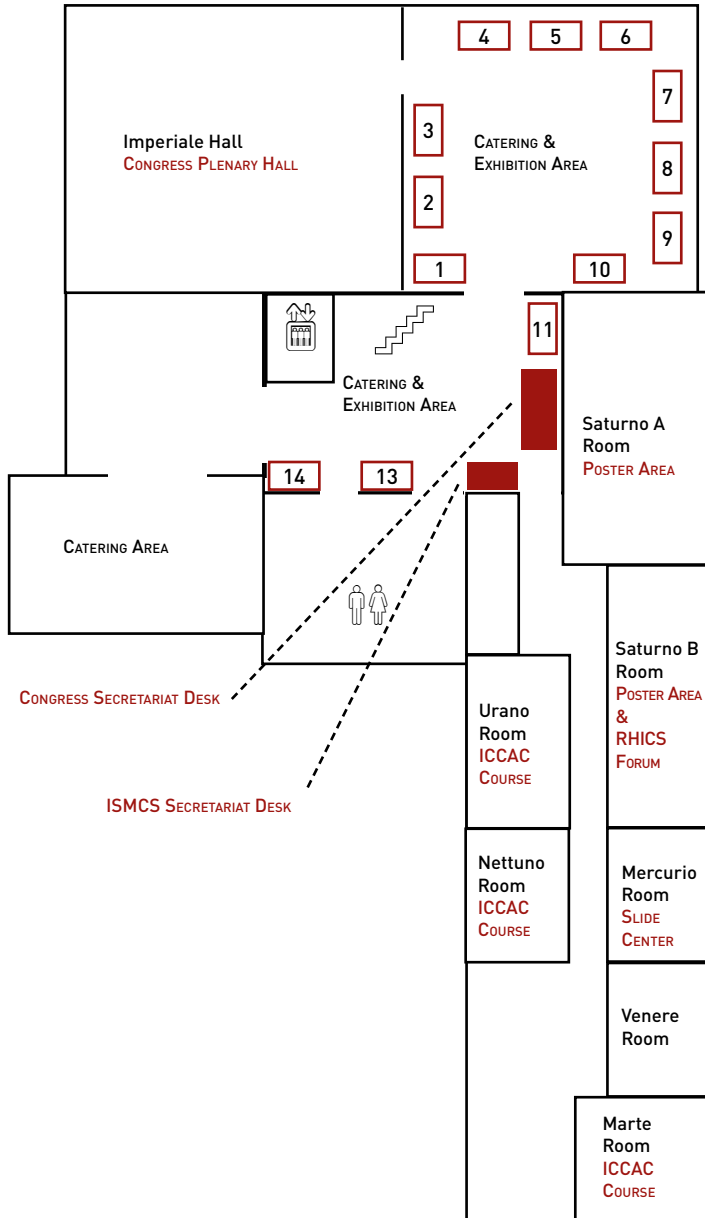
This prestigious award is bestowed to the Company that has given the most significant contribution to the advancement of the field.

CONGRESS AREA

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- 01 • TRANSONIC
- 02 • ABBOTT
- 03 • BIOVENTRIX
- 04 • EUROSETS
- 05 • MEDTRONIC
- 06 • GETINGE
- 07 • ABIOMED – GADA ITALIA
- 08 • JARVIK HEART – LEVITICUS CARDIO
- 09 • EVERHEART SYSTEMS
- 10 • VEGA
- 11 • CORWAVE
- 13 • PARAGONIX
- 14 • 4MEDIKA

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