

I3M 2022

The 19th International Multidisciplinary Modeling & Simulation Multiconference

(For online Participants, the Conference Time is CEST)

Program

Organized by



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I3M 2022 Partners

The I3M 2022 Organization Committee thanks all the partners and institutions for their support to the event.

Scientific Partners



Industrial Sponsors



Media Partners



I3M 2022

List of Conferences and Workshop

The 19th International Multidisciplinary Modelling & Simulation Multiconference (I3M 2022) involves EMSS, HMS, MAS, DHSS, IWISH, SESDE, FOODOPS, Conferences, Workshops and related Special Sessions; All Sessions are open to all I3M Attendees.

- EMSS: European Modelling & Simulation Symposium, 34th Edition, Part of I3M 2022.
- HMS: The International Conference on Harbour, Maritime & Multimodal Logistics Modelling and Simulation, 24th Edition, Part of I3M 2022.
- MAS: The International Conference on Modelling & Applied Simulation, 21st Edition, Part of I3M 2022.
- DHSS: The International Defense and Homeland Security Simulation Workshop, 12th Edition, Part of I3M 2022
- IWISH: The International Workshop on Innovative Simulation for Healthcare, 11th Edition, Part of I3M 2022.
- SESDE: The International Workshop on Simulation for Energy, Sustainable Development & Environment, 10th Edition, Part of I3M 2022.
- FOODOPS: The International Food Operations and Processing Simulation Workshop, 8th Edition, Part of I3M 2022.
- Special Sessions: I3M Special Sessions are freely open to all the attendees (e.g. Opening Ceremony, I3M 2022 Special sessions, etc.).

13M 2022

Organization Committees

Organization Committees

13M 2022 General co-Chairs

Agostino G. Bruzzone - DIME - University of Genoa, Italy

Yuri Merkuryev - Department of M&S, Riga TU, Latvia

13M 2022 Program Co-Chairs

Francesco Longo - MSC-LES, DIMEG, University of Calabria, Italy

Miquel Angel Piera - Autonomous University of Barcelona, Spain

EMSS: The 34th European Modelling & Simulation Symposium

EMSS General co-Chairs:

Francesco Longo, MSC-LES, DIMEG, University of Calabria, Italy

Emilio Jiménez, La Rioja University, Spain

EMSS Program co-Chairs:

Michael Affenzeller, Upper Austria University of Applied Sciences, Austria

Antonella Petrillo, Parthenope University of Naples, Italy

HMS: The 24th International Conference on Harbour, Maritime & Multimodal Logistics Modelling and Simulation

HMS General co-Chairs:

Agostino Bruzzone, DIMEG, University of Genoa, Italy

Yury Merkuryev, Riga Technical University, Latvia

HMS Program co-Chairs:

Eleonora Bottani, University of Parma, Italy

Miquel Angel Piera - Autonomous University of Barcelona, Spain

MAS: The 21st International Conference on Modelling & Applied Simulation***MAS General co-Chairs:***

Marina Massei, Liophant Simulation, Italy

Adriano Solis, York University, Canada

MAS Program Chair:

Fabio De Felice, University of Cassino, Italy

DHSS: The 12th International Defense and Homeland Security Simulation Workshop***DHSS General co-Chairs:***

Agostino Bruzzone, DIMEG, University of Genoa, Italy

Benjamin Goldberg, US Army DEVCOM Soldier Center, USA

IWISH: The 11th International Workshop on Innovative Simulation for Health Care***IWISH General co-Chairs:***

Marco Frascio, University of Genoa, Italy

Vera Novak, BIDMC, Harvard Medical School, USA

SESDE: The 10th International Workshop on Simulation for Energy, Sustainable Development & Environment***SESDE General co-Chairs:***

Janos Sebestyen Janosy, Centre for Energy Research, Hungary

Gregory Zacharewicz, Ecole des Mines d'Alès, France

SESDE Program Chair:

Letizia Nicoletti, CAL-TEK Srl, Italy

Massimiliano Schiraldi, Rome Tor Vergata University, Italy

FOODOPS: The 8th International Food Operations and Processing Simulation Workshop***FOODOPS General Chair:***

Giuseppe Vignali, University of Parma, Italy

FOODOPS Program Chair:

Francesco Longo, University of Calabria, Italy

I3M 2022

Hybrid Conference

All the sessions will be physically chaired. If you are a **Session Chair** please follow the instructions reported below.

Procedure for Sessions' Chairs

If you are a Session Chair, below you can find the procedure you are required to follow to manage your session.

- 1) Please be sure to join the Session Room at least 15 minutes before the Session scheduled time.
- 2) Check the presence of the speakers in the room and ask them some basic information to properly introduce them before their speeches. Please ask the speakers to upload their presentations on the laptop.
- 3) Some of the speakers will be online. Please ask them some basic information to properly introduce them. Familiarize yourself with the Microsoft TEAMS meeting functionalities (e.g. camera and microphone controls, desktop sharing, etc.). You can easily find all these functionalities on the screen. A session assistant will be there to start the Microsoft TEAMS session for online participants and to help you if needed.
- 4) Keep the computer camera and microphone switched ON. At the time of the session you can introduce yourself as Session Chair and you can start the Session. Please be sure to stay close to the microphone to be sure that online participants can hear you well.
- 5) If you have in person speakers in your session:
 - a. Be sure to share the screen of the presentation on Microsoft TEAMS (so the online attendees can follow the presentation).
 - b. Ask the speaker to stay close to the microphone (to allow online attendees to listen properly).
 - c. After the presentation, please check if there are questions from physical and online participants. If there are no questions, please be prepared to “break the ice” by doing the first question.
- 6) If you have online speakers in your session:
 - a. Ask the speaker to switch the microphone and the camera ON and introduce the speaker.
 - b. Ask the speaker to share his/her screen and start the video of the presentation. Each video should last 10 minutes maximum.
 - c. After the video of the presentation, please check if there are questions from the physical attendees or from the online attendees. After question time, remember the online speaker to switch the camera and the microphone OFF. If there are no questions, please be prepared to “break the ice” by doing the first question.

I3M 2022

Hybrid Conference

All the sessions will be held in a hybrid mode both in presence and online (through Microsoft TEAMS). If you are an “in presence” or “online” speaker please follow the instructions reported below.

Procedure for "in presence" Speakers

If you are an “in presence” Speaker, below you can find the procedure you are required to follow to make your presentation.

- Please join the session at least 15 minutes before the scheduled time and present yourself to the Session Chair.
- At a certain point in time (according to the scheduling of the presentations in the session), the Session Chair will call your name, present you and invite you to join the floor. Please be sure that the screen of the computer is shared on TEAMS.
- Please stay close to the microphone when doing your presentation (so the “online” participants can easily listen your presentation).

Procedure for "online" Speakers (**Conference time is CEST**)

If you are an “online” Speaker, below you can find the procedure you are required to follow to make your presentation.

- Please join the session at least 15 minutes before the scheduled time and present yourself to the Session Chair (you can switch your camera and microphone ON). You can easily find the name of the Session Chair within the Conference Program. After presenting yourself to the Session Chair, please switch your camera and microphone OFF.
- At a certain point in time (according to the scheduling of the presentations in the session), the Session Chair will call your name, present you and invite you to share the video of your presentation. At this time, please switch your microphone and your camera ON and share the video of your presentation.
- The video of your presentation must not exceed 10 minutes length. Be ready to answer questions made by session’s attendees.
- After the presentation and questions time, please be sure to switch again your microphone and camera OFF.

I3M 2022

Hybrid Conference

All the sessions will be held in a hybrid mode both in presence and online (through Microsoft TEAMS). If you are an “in presence” attendee or an “online” attendee please follow the instructions reported below.

Procedure for "in presence" Session Attendees

If you are an “in presence” Session Attendee, below you can find the procedure you are required to follow during the Session.

- Please join the Session at the scheduled time according to the conference program.
- You will be allowed to make questions at the end of each presentation. Please be sure to raise your hand in case of question. The Session Chair will allow you to make the question.
- When you ask the question remember to stay close to the microphone or to be sure that the online attendees (or speaker) can correctly hear your question (if needed the chair of the session can repeat your question for the online attendees).

Procedure for "online" Session Attendees (Conference time is CEST)

If you are an “online” Session Attendee, below you can find the procedure you are required to follow during the Session.

- Please join the session at the scheduled time (conference time is CEST) according to the conference program. The links to join the sessions are reported within the program in correspondence of each session. Once you join the session, please be sure to switch your microphone and camera OFF.
- You will be allowed to make questions at the end of each presentation. Please be sure to raise your hand in case of question (you have to click on the “raised hand” symbol in Microsoft TEAMS. The Session Chair will allow you to make the question by calling your name).
- When you ask the question remember to switch your microphone and camera ON.
- After the interaction with the Speaker please remember to switch your microphone and camera OFF.

I3M 2022

Activities and Sessions Details

Monday, September 19th

09:00 am – 10:30 am CEST, Room: LEONARDO	Mon 19th, 2022
<i>Microsoft Teams, Session Link:</i> Access the Online Session	
I3M 2022 Opening Ceremony <i>Chair: Agostino Bruzzone, DIME, University of Genoa, Italy</i> <ul style="list-style-type: none">• I3M Multiconference – Prof Agostino Bruzzone, DIME, University of Genoa, Italy• Welcome Address – Prof. Orazio Schillaci, Rector, University of Rome Tor Vergata, Italy• Welcome Address – Prof. Nathan Levialedi Ghiron, Vice-Rector, University of Rome Tor Vergata, Italy• Welcome Address – Prof. Ugo Zammit, Engineering Faculty Chair, University of Rome Tor Vergata, Italy• EMSS Conference – Prof. Francesco Longo, University of Calabria, Italy• HMS Conference – Prof. Yuri Merkurjev, Riga Technical University, Latvia• MAS Conference – Prof. Adriano Solis, York University, Canada• IMAACA Conference – Prof. Agostino Bruzzone, DIME, University of Genoa, Italy• DHSS Conference – Prof Agostino Bruzzone, DIME, University of Genoa, Italy• IWISH Workshop – Prof. Vera Novak, Harvard Medical School and Prof. Marco Frascio, University of Genoa, Italy• SESDE Workshop – Prof. Janos Sebestyeny Janosy, Centre for Energy Research, Hungary• FOODOPS Workshop – Prof. Giuseppe Vignali, University of Parma, Italy• Liophant – Dr. Marina Massei, University of Genova, Italy• MISS & MSNet Societies and Simulation Team – Prof. Emilio Jimenez, La Rioja University, Spain• I3M 2023 and Conference Updates, Prof. Agostino Bruzzone, University of Genoa, Italy	

10:30 am – 11:00 am CEST

Coffee Break

11:00 am – 12:30 pm CEST

Room: LEONARDO

Mon 19th, 2022

Microsoft Teams, Session Link:

[Access the Online Session](#)

I3M Plenary Session Speeches

Chair: Prof. Agostino G. Bruzzone, DIME, University of Genoa, Italy

- > **Prof. Michael Affenzeller**, Full Professor, University of Applied Sciences, Upper Austria
Prescriptive Analytics: Simulation meets Data Science and Optimization

- > **Prof. Eleonora Bottani**, Full Professor, University of Parma, Italy
Building effective simulation research papers - a scientometrics perspective of discrete event simulation studies in logistics

- > **Prof. Gerson Cunha**, Full Professor, Federal University of Rio de Janeiro, Brasil
X-Realities and Metaverse in Engineering

12:30 pm – 2:00 pm CEST

Lunch Break

2:00 pm – 3:30 pm CEST

Room: LEONARDO

Mon 19th, 2022

Microsoft Teams, Session Link:

[Access the Online Session](#)

EMSS: Sim & Opt in Industry, Aviation, Services & Transport - Session I

Chair(s): Idalia Flores, University of Mexico; Miguel Mújica Mota, Amsterdam University of Applied Sciences

- > I3M_29: Gate Assignment Problem Optimization Using a Simulator as a Model and Flight Delay Prediction
Alejandro Murrieta-Mendoza, Roberto Salvador Felix Patron and Miguel Mujica Mota

- > I3M_34: A novel validation approach for validating the simulation model of a passengers'

airport terminal: case study Palma de Mallorca airport

Paolo Scala, Miguel Mujica, Juan Blasco-Puyuelo, Olivia Garcia-Cantu and Carlos Blasco

- > I3M_109: Analysing capacity challenges in the Multi-Airport System of Mexico City
Miguel Mujica Mota, Irene Izco and Javier Faulin
- > I3M_117: Simulation of interactions of road vehicles and pedestrians at public transport nodes: Pilot study
Antonín Suk, Jakub Hora and Josef Bulíček

2:00 pm – 3:30 pm CEST

Room: GALILEO

Mon 19th, 2022

Microsoft Teams, Session Link:

[Access the Online Session](#)

MAS-EMSS: Inventory and Warehouse applications

Chair(s): Adriano Solis, York University

- > I3M_68: Analysis and improvement proposal for the supply and storage process in Tier 1
Karen Janet García-Orozco, Jenaro Nosedal-Sánchez, Luis Armando Peña-González and Javier Garcia-Gutierrez
- > I3M_9: Assortment optimization in sheet metal procurement with k-means
Nils Kalbe and Markus Witthaut
- > I3M_20: Simulation inventory policies of vaccines at the Veterinary “El Trébol”
Danya Fernández Bárcena, Lizbeth Georgina Hernández Salas, Ana Carolina Ramírez Álvarez and Gabriela Sánchez De Luna
- > I3M_52: The Role Of AI In Warehouse Digital Twins
Adnane Drissi Elbouzidi, Marie-Jane Bélanger, Abdessamad Ait El Cadi, Robert Pellerin, Estefania Tobon Valencia and Samir Lamouri

2:00 pm – 3:30 pm CEST

Room: ARCHIMEDE

Mon 19th, 2022

Microsoft Teams, Session Link:

[Access the Online Session](#)

MAS-EMSS: Advanced Simulation and paradigms

Chair(s): Antonella Petrillo, Parthenope University of Naples

- > I3M_113: Towards a Smart Factory: An integrated approach based on Simulation and AHP

Fabio De Felice, Cristina De Luca, Emanuele Guadalupi and Antonella Petrillo

I3M_119: Planification model-based process discovering

Sihem Mallek-Daclin, Layina Chaabaoui, Souad Rabah, Nicolas Daclin and Greg Zacharewicz

- > I3M_121: Business Process Web-based Platform for Multi modeling and Distributed Simulation

Mariane El Kassis, Francois Trouset, Nicolas Daclin and Gregory Zacharewicz

- > I3M_120: Physical Display for Visualization of Three-Dimensional Surfaces

Lucas Moreira Dias, Carlos Henrique de Azevedo Pires Soares Coutinho, Maria Celia Santos Lopes, Robson da Cunha Santos and Gerson Gomes Cunha

2:00 pm – 3:30 pm CEST

Room: PITAGORA

Mon 19th, 2022

Microsoft Teams, Session Link:

[Access the Online Session](#)

DHSS: Defense and Homeland Security

Chair(s): Agostino Bruzzone, University of Genoa

- > I3M_5: Modelling a cause-and-effect relationship of resilience promotion by fuzzy DEMATEL- trapezoidal structure

Svajone Bekesiene, Olga Navickienė and Rosita Kanapeckaitė

- > I3M_19: Augmented probability simulation for adversarial risk analysis in general security games

Roi Naveiro, David Ríos Insua and Jose Manuel Camacho

- > I3M_48: ISIDOR: Analysing the Consequences of an Extensive and Prolonged Internet Outage with System Dynamics

Larissa Schachenhofer, Manfred Gronalt and Patrick Hirsch

- > I3M_80: Simulating actors' behaviors within terrorist attacks scenarios based on a multi-agent system

Oussama Kebir, Issam Nouaouri, Lilia Rejeb and Lamjed Ben Said

- > I3M_128: Models for strategic decision makers during CBRN crisis in industrial and urban

environment

Bruzzone A.G., Massei M., Giovannetti A., Pedemonte M., Rovelli R.

- > I3M_134: Hybrid and cyber threat in towns and critical infrastructures and Industrial Plants

Bruzzone A.G., Massei M., Ferrari R.

3:30 pm – 4:00 pm CEST

Coffee Break

4:00 pm – 5:30 pm CEST

Room: LEONARDO

Mon 19th, 2022

Microsoft Teams, Session Link:

[Access the Online Session](#)

EMSS: Sim. & Opt. in Industry, Aviation, Services & Transport - Session II

Chair(s): Idalia Flores, University of Mexico; Miguel Mújica Mota, Amsterdam University of Applied Sciences

- > I3M_62: A flow shop scheduling approach for the production-routing problem with complex setups constraints
Juan Pablo Cisneros and Idalia Flores
- > I3M_16: Geographical simulation-optimization system for solving subway complex emergency problems
Adrián Gutiérrez Gómez and Aida Huerta Barrientos
- > I3M_8: Co-simulation platform for demonstration and testing of moving block systems
Achila Mazini, Lei Chen, David Kirkwood, Xinnan Lyu and Miquel Garcia-Fernàndez
- > I3M_112: An approximation technique and a possible application for a class of delay differential equations
Stefania Tomasiello and Luigi Rarità
- > I3M_135: Recovering Critical Raw Materials from WEEE using Artificial Intelligence
Alberto Cabri, Francesco Masulli, Stefano Rovetta, Muhammad Mohsin

4:00 pm – 5:30 pm CEST Room: GALILEO	Mon 19th, 2022
<i>Microsoft Teams, Session Link:</i>	
<div style="border: 1px solid black; background-color: #FFD700; padding: 5px; display: inline-block;"> Access the Online Session </div>	
<p>EMSS: Industrial Modelling & Simulation & Digital Twins <i>Chair(s): Greg Zacharewicz, IMT Mines Ale</i></p> <ul style="list-style-type: none"> > I3M_21: Data-driven recipe optimisation based on unified digital twins and shared prediction models <i>René Wöstmann, Thorbjörn Borggräfe, Sascha Janßen, Josef Kimberger, Solomon Olud, Nick Bennett, Victor Hernandez Moreno and Jochen Deuse</i> > I3M_23: Application of Deep Learning based on a Simulation Model to classify Production Orders <i>Lukas Rissmann, Konstantin Muehlbauer and Sebastian Meissner</i> > I3M_32: Multi-Criteria Simulation Evaluation for Manual-Order-Picking Warehouse Design <i>Safwan Altarazi and Maysa Ammouri</i> > I3M_51: Digital Model of Coalmine Face <i>Victor Okolnishnikov and Sergey Rudometov</i> > I3M_124: Evaluation of risk awareness by Simulation and Extended reality in industrial plant <i>Bruzzone A.G., Massei, M., Giovannetti A., Ferrari R., Fancello G, Gilberti C., Tarone F., Longo F.</i> 	

4:00 pm – 5:30 pm CEST Room: ARCHIMEDE	Mon 19th, 2022
<i>Microsoft Teams, Session Link:</i>	
<div style="border: 1px solid black; background-color: #FFD700; padding: 5px; display: inline-block;"> Access the Online Session </div>	
<p>HMS: Harbours & Terminals Applications <i>Chair(s): Manfred Gronalt, BOKU University</i></p> <ul style="list-style-type: none"> > I3M_30: Definition and Detection of Hypervulnerabilities using a Framework for Assessing Port Resilience <i>Katherine Smith, Rafael Diaz, Yuzhong Shen and Francesco Longo</i> 	

- > I3M_47: Automated damage detection of trailers at intermodal terminals using deep learning
Pavel Cimili, Jana Voegl, Patrick Hirsch and Manfred Gronalt
- > I3M_99: Simulation based Estimation of Power Consumption of Reefers at Container Yards
Zhuoyao Zhao, Chen Shen, Yue Qi, Guolei Tang and Dong Zhang
- > I3M_122: Optimizing transportation between ports and the hinterland for decreasing impact to the environment
Vytautas Paulauskas, Lawrence Henesey, Donatas Paulauskas and Martynas Simutis
- > I3M_130: Serious games, simulation and IoT/IIoT for improving harbor performance
Bruzzone A.G., Sciomachen A., Cepolina E., Giovannetti A., De Paoli A., Ferrari R., Gotelli M., Pedemonte M., Gadupuri B., Fabbrini G. Martella A., Monaci F., Bucchianica L.

<p>4:00 pm – 5:30 pm CEST</p> <p>Room: PITAGORA</p>	<p>Mon 19th, 2022</p>
<p><i>Microsoft Teams, Session Link:</i></p> <div style="text-align: center; border: 1px solid black; background-color: #FFD700; padding: 5px; display: inline-block;"> Access the Online Session </div>	
<p>SESDE-EMSS: Resources Monitoring and Depletion</p> <p><i>Chair(s): Massimiliano Schiraldi, University of Rome Tor Vergata</i></p> <ul style="list-style-type: none"> > I3M_7: A Social Media-driven Digital Twin of an Invasive Species <i>Jim Scheibmeir and Yashwant Malaiya</i> > I3M_13: 2D Simulations of Water Treatment with Upscaled Capacitive Deionization <i>Johan Nordstrand and Joydeep Dutta</i> > I3M_26: Agent-based modelling of a small-scale fishery in Corsica <i>Eric Innocenti, Corinne Idda, Dominique Prunetti and Pierre-Regis Gonsolin</i> > I3M_59: How sustainability factors influence maintenance of water distribution systems feeding manufacturing industries <i>Silvia Carpitella, Antonella Certa and Giulia Marcon</i> > I3M_27: Visual Change Detection in Multi-Temporal Vegetation Transects of Alpine Plants <i>Sebastian Pritz, Christoph Praschl, Roland Kaiser and Gerald Zwettler</i> 	

I3M 2022

Activities and Sessions Details

Tuesday, September 20th

9:00 am – 10:30 am CEST Room: LEONARDO	Tue 20th, 2022
<i>Microsoft Teams, Session Link:</i> Access the Online Session	
EMSS: Soft Computing Modeling & Simulation - Session I <i>Chair(s): Michael Affenzeller, University of Applied Sciences, Upper Austria</i> <ul style="list-style-type: none">> I3M_35: Recent trends in using machine learning and Twitter data for disaster management <i>Maria Drakaki, Vasileios Linardos and Panagiotis Tzionas</i>> I3M_64: Strategies for Semi-Automated Registration of Historic Aerial Photographs Utilizing Street and Roof Segmentations as Durable Landmarks <i>Gerald Zwettler, Yuta Ono, Michael Stradner and Christoph Praschl</i>> I3M_96: Utilizing Interpretable Machine Learning to detect Dynamics in Energy Communities <i>Jan Zenisek, Florian Bachinger, Erik Pitzer, Stefan Wagner and Michael Affenzeller</i>> I3M_41: Modelling shifting trends over time via topic analysis of text documents <i>Oliver Krauss, Andrea Aschauer and Andreas Stöckl</i>	

9:00 am – 10:30 am CEST Room: GALILEO	Tue 20th, 2022
<i>Microsoft Teams, Session Link:</i> Access the Online Session	
<p>EMSS: Advances in discrete, distributed, combined and agent based simulation <i>Chair(s): Emilio Jemènez, University of La Rioja</i></p> <ul style="list-style-type: none"> > I3M_10: Using HLPC for parallelization of autonomous tests of WEB applications from its GUI <i>Mario Rossainz, Jesús Alberto Islas Fuentes, Ivo H. Pineda Torres and Manuel I. Capel Tuñón</i> > I3M_42: Hybrid Simulation Design and Implementation <i>Andrew Greasley</i> > I3M_103: Efficient handling of lots of simulation data files <i>Roman Divis and Zdenek Novotny</i> > I3M_81: Agent-based Modeling and Simulation of Complex Industrial Systems: Case Study of the Dehydration Process <i>Noureddine Seddari, Sohaib Hamioud, Abdelghani Bouras, Sara Kerraoui and Nesrine Menai</i> 	

9:00 am – 10:30 am CEST Room: ARCHIMEDE	Tue 20th, 2022
<i>Microsoft Teams, Session Link:</i> Access the Online Session	
<p>HMS-EMSS-FOODOPS-SESDE: Sim. & Opt. in Logistics and Supply Chains - Session I <i>Chair(s): Eleonora Bottani, University of Parma</i></p> <ul style="list-style-type: none"> > I3M_28: Advanced management in a logistics platform equipped with automated handling means <i>Domenico Gattuso and Domenica Savia Pellicanò</i> > I3M_90: Supply Chain Performance Metrics in the LARG Perspectives: a survey and model <i>Lucia Catellani and Eleonora Bottani</i> > I3M_105: The use of autonomous coupling capable trailer to reduce the cost per delivery and increase profit for logistic companies: a simulative analysis 	

Elvezia Cepolina, Akhil Malisetty Venkata and Matteo Zoppi

- > I3M_73: Order Assignment Strategies for Heterogeneous in-Bound Transport Systems
Slaheddine Mestiri, Fabian Küster and Johannes Fottner

- > I3M_131: Simulation for evaluating new polar routes and their strategic impact on port networks and shipping lines
Bruzzone A.G., Genta G., Arduini M., Taib A., Sina X.

9:00 am – 10:30 am CEST

Room: PITAGORA

Tue 20th, 2022

Microsoft Teams, Session Link:

[Access the Online Session](#)

SESDE-MAS: Energy and Thermal Applications

Chair(s): Vittorio Solina, University of Calabria

- > I3M_11: A comparative numerical simulation study for outdoor comfort indexes in courtyards
Victoria Patricia Lopez Cabeza, Eduardo Diz-Mellado, Carlos Rivera-Gómez and Carmen Galán-Marín

- > I3M_106: Sensor based IoT architecture for the indoor well-being
Mariangela De Vita, Eleonora Laurini, Vincenzo Stornelli, Giuseppe Ferri and Pierluigi De Berardinis

- > I3M_50: Reliability simulation of a multi-state Wind Turbine Generator using SHyFTOO
Soheyl Moheb Khodayee, Ludovica Oliveri, Jose Ignacio Aizpurua, Diego D'Urso and Ferdinando Chiacchio

- > I3M_53: Wind turbine pitch and active tower damping control system design using metaheuristic multi-objective bat optimization
Adrian Gambier and Yul Yunazwin Nazaruddin

- > I3M_72: Real-time wind turbine simulation for pitch control purposes by using a hardware-in-the-loop approach
David Kenko and Adrian Gambier

10:30 am – 11:00 am

Coffee Break

11:00 am – 12:30 pm CEST Room: LEONARDO	Tue 20th, 2022
<p><i>Microsoft Teams, Session Link:</i></p> <p style="text-align: center;">Access the Online Session</p>	
<p>EMSS-IMAACA: Soft Computing Modeling & Simulation - Session II <i>Chair: Michael Affenzeller, Upper Austria University of Applied Sciences</i></p> <ul style="list-style-type: none"> > I3M_43: Model Verification in Graph Databases and its Application in Neo4j <i>Christoph Praschl, Andreas Pointner, Oliver Krauss, Emmanuel Helm and Andreas Schuler</i> > I3M_44: Towards Modelling Namespaces in Graph Databases <i>Andreas Pointner, Christoph Praschl and Oliver Krauss</i> > I3M_46: Distributed Classification - A Scalable Approach to Semi Supervised Machine Learning <i>Rainer Meindl, Simone Sandler, Elisabeth Mayrhuber and Oliver Krauss</i> > I3M_108: Path Planning and Control for Omni-directional Mobile Robot using Q-Learning and CLIK Algorithm for Home Environment <i>Saurabh Sachan and P. M. Pathak</i> 	

11:00 am – 12:30 pm CEST Room: GALILEO	Tue 20th, 2022
<p><i>Microsoft Teams, Session Link:</i></p> <p style="text-align: center;">Access the Online Session</p>	
<p>FOODOPS: Modelling & Simulation of Food Processing - Session I <i>Chair(s): Giuseppe Vignali, University of Parma</i></p> <ul style="list-style-type: none"> > I3M_25: Design space exploration of a poultry fillet processing system using discrete-event simulation <i>Nick Paape, Joost van Eekelen and Michel Reniers</i> > I3M_45: Identification of Similarities and Clusters of Bread Baking Recipes Based on Data of Ingredients <i>Stefan Anlauf, Melanie Lasslberger, Rudolf Grassmann, Johannes Himmelbauer and Stephan Winkler</i> > I3M_56: Optimization of temperature profile of cake batter in a ohmic-assisted heater for 3D food printing applications 	

Mamadou Lamine Niane, Olivier Rouaud, Anthony Ogé, Delphine Quéveau, Alain Le-Bail and Patricia Le-Bai

- > I3M_77: A Framework of a Conceptual Model to manage the Food Lost and Waste in the Agri-Food supply chain
Bartolomeo Silvestri, Francesco Facchini, Salvatore Digiesi and Luigi Ranieri

11:00 am – 12:30 pm CEST

Room: ARCHIMEDE

Tue 20th, 2022

Microsoft Teams, Session Link:

[Access the Online Session](#)

HMS-EMSS-FOODOPS: Sim. & Opt. in Logistics and Supply Chains - Session II

Chair(s): Eleonora Bottani, University of Parma

- > I3M_93: Logistics management in the Covid-19 period: a case study in the food sector
Eleonora Bottani, Marta Rinaldi and Barbara Bigliardi
- > I3M_94: Warehouse Design and Management: a simulative approach to minimize the distance travelled by pickers
Roberto Montanari, Eleonora Bottani, Andrea Volpi, Federico Solari, Natalya Lysova and Michele Bocelli
- > I3M_123: Challenges and solutions for designing a COVID-19 vaccination hub: a simulation approach
Antonio Cimino, Maria Grazia Gnoni, Francesco Longo, Rafael Diaz, Adriano Solis, Antonio Nervoso, Karen Althea, Marika Diaco
- > I3M_12: The supply chain as a complex adaptive system: hybrid simulation modelling
Alejandro Nila Luevano and Aida Huerta Barrientos
- > I3M_92: A multiobjective location-allocation model for day-care facilities planning
Victoria Mayela Luna Rojas and Idalia Flores de la Mota

11:00 am – 12:30 pm CEST Room: PITAGORA	Tue 20th, 2022
<p><i>Microsoft Teams, Session Link:</i></p> <p style="text-align: center;">Access the Online Session</p>	
<p>Special Session: I3M 2023 and MISS/MSNet Board of Directors Meeting <i>Chair(s): Agostino Bruzzone, University of Genoa</i></p> <p>This Special Session is an opportunity to meet colleagues from different Universities and countries and to join a completely open discussion about the organization of the I3M 2023 edition that will be held in Athens, Greece.</p> <p>As the discussion will be completely open, there are no predefined speakers and there is no need to prepare specific power point presentations. During the session, each attendee will be invited to introduce herself/himself and her/his affiliation as well as to discuss about opportunities to set-up new tracks and special sessions and/or join the I3M International Program Committee. New ideas to improve the conference organization are also welcome.</p> <p>The session will also host the traditional MISS and MSNet Annual Directors Meeting.</p>	

12:30 pm – 2:00 pm CEST

Lunch Break

2:00 pm – 3:30 pm CEST Room: LEONARDO	Tue 20th, 2022
<p><i>Microsoft Teams, Session Link:</i></p> <p style="text-align: center;">Access the Online Session</p>	
<p>EMSS-MAS-IMAACA: Advanced Visualization, Training and Learning <i>Chair(s): Miguel Mújica Mota, Amsterdam University of Applied Sciences; Michael Affenzeller & Oliver Krauss, University of Applied Sciences Upper Austria</i></p> <ul style="list-style-type: none"> > I3M_22: A Conceptual Training Simulator for the Assembly of Electric Vehicle Batteries in Virtual Reality <i>Trinidad Sánchez Montoya, Milad Ashour Pour and Kerstin Johansen</i> > I3M_89: Assignment model for courses online <i>Alejandro Felipe Zárate Pérez and Idalia Flores de la Mota</i> 	

- > I3M_49: Conceptual framework of a Learning Experience Platform (LXP) to strengthen AI competence by linking simulation technologies and AI
David Weigert and Fabian Behrendt
- > I3M_4: Applying Conformance Checking on Virtual Laboratory Experiments
Athanasios Sypsas and Dimitris Kalles

<p>2:00 pm – 3:30 pm CEST Room: GALILEO</p>	<p>Tue 20th, 2022</p>
<p><i>Microsoft Teams, Session Link:</i></p> <p style="text-align: center;">Access the Online Session</p>	
<p>FOODOPS: Modelling & Simulation of Food Processing - Session II <i>Chair(s): Giuseppe Vignali, University of Parma</i></p> <ul style="list-style-type: none"> > I3M_100: Simulation and parametric sensitivity evaluation for ohmic heating of chicken breast <i>Sebahattin Serhat Turgut, Efthymios Siamos and Aberham Hailu Feyissa</i> > I3M_101: Performance assessment, through CFD simulation, of an ultraviolet reactor for the processing of fruit juices <i>Roberto Montanari, Andrea Volpi, Federico Solari and Natalya Lysova</i> > I3M_102: Design and optimization through simulation of an industrial system for the continuous UV-C treatment of fruits and vegetables <i>Andrea Volpi, Federico Solari, Natalya Lysova and Michele Bocelli</i> > I3M_79: Analysis of product shrinkage and waste in a potato bagging plant <i>Mercedes Saenz-Baños, Juan Ignacio Latorre-Biel, Julio Blanco Fernández, Eduardo Martinez-Camara, Mercedes Perez de la Parte and Emilio Jimenez-Macias</i> 	

2:00 pm – 3:30 pm CEST Room: ARCHIMEDE	Tue 20th, 2022
<i>Microsoft Teams, Session Link:</i>	
Access the Online Session	
<p>IWISH: Healthcare Applications - Session I <i>Chair(s): Vera Novak, Harvard Medical School</i></p> <ul style="list-style-type: none"> > I3M_85: ELVIS - Educational Laparoscopy with Virtual Instructive Simulations and robotics <i>Marco Frascio, Michele Minuto, Marta Baratto, Federico Boero, Luca Corradi, Cesare Librici and Carmelo Chiarenza</i> > I3M_110: 3D Printed Models of Heart/Aorta/Spine Assembly from CT Scan with IV Contrast: Maintaining Anatomical Correctness and Model Detail <i>Lori Lioce, Dietmar Moeller, Cooper Gunter, Trenton Kelsey, Gary Maddux and Bernard Schroer</i> > I3M_111: Development of Simulator for Training Nursing Students: A 3D Printed Model of Arteries and Veins Rising from Heart <i>Lori Lioce, Cooper Gunter, Gary Maddux, Dietmar Moeller and Bernard Schroer</i> > I3M_inv1: Can Intranasal Insulin Improve Functional Outcomes in Diabetes? <i>Vera Novak</i> 	

2:00 pm – 3:30 pm CEST Room: PITAGORA	Tue 20th, 2022
<i>Microsoft Teams, Session Link:</i>	
Access the Online Session	
<p>Special Session: The SMALLDERS Project <i>Chair(s): Francesco Longo, University of Calabria</i></p> <p>This special session is devoted to present the recently financed SMALLDERS project. The project is carried out by a consortium of 5 partners including University of Calabria (Italy), University of Parma (Italy), IMT Mines Ales (France), Extremadura University (Spain) and University of Tunis (Tunisia).</p> <p>The overall objective of the SMALLDERS project is to carry out basic research as well as industrial research and development activities with the aim of identifying a framework that encompass innovative strategies, methodologies, technologies and business models to increase the resilience</p>	

of small-scale farms in the Mediterranean area, to effectively and efficiently face unexpected and disruptive events such as the COVID-19 pandemic.
The session will present the structure and main goals of the project as well as preliminary results.
All the attendees are invited to participate!

3:30 pm – 4:00 pm

Coffee Break

4:00 pm – 5:30 pm CEST

Room: LEONARDO

Tue 20th, 2022

Microsoft Teams, Session Link:

[Access the Online Session](#)

EMSS-MAS-HMS: Simulation for Safety and Security

Chair(s): Marco Frosolini, University of Pisa

- > I3M_54: Discrete-event simulation of construction safety inspections
Abbey Dale Abellanosa, Yu Wei, Vahid Abbasianfar, Yasser Mohamed, Hamidreza Golabchi and Estacio Pereira
- > I3M_66: Mobile crane signalman static hand signals classification framework using deep convolution neural network
Asif Mansoor, Shuai Liu, Ghulam Muhammad Ali, Ahmed Bouferguene, Mohamed Al-Hussein and Soda
- > I3M_115: Design of an evacuation and addressing system in case of emergency or accident in the port area of Bastia
Alessandro Farina, Marco Frosolini, Massimiliano Petri and Antonio Pratelli
- > I3M_69: Algorithm for computer vision based indoor positioning system for autonomous railway safety system simulation
Jurijs Timofejevs, Mihails Gorobets and Andrejs Potapovs
- > I3M_125: Innovative Virtual Lab for Improving Safety and Port Operations
Bruzzone A.G., Massei M., De Paoli A., Ferrari R., Gadupuri B., Reverberi A., Cardelli M., Fancello G., Frosolini M.

4:00 pm – 5:30 pm CEST Room: GALILEO	Tue 20th, 2022
<p>Microsoft Teams, Session Link:</p> <p style="text-align: center;">Access the Online Session</p>	
<p>FOODOPS: Sustainability of Food Processes <i>Chair: Giuseppe Vignali, University of Parma (Italy)</i></p> <ul style="list-style-type: none"> > I3M_83: Environmental impact analysis of HPP and PCT decontamination technologies: an LCA comparison <i>Arianna Paini, Roberta Stefanini and Giuseppe Vignali</i> > I3M_87: Food waste valorisation and techno-economic analyses through simulation's software: a literature review <i>Giovanni Paolo Carlo Tancredi, Roberta Stefanini and Giudeppe Vignali</i> > I3M_114: Abatement of volatile organic compounds from the exhaust gases of an industrial bakery oven: comparative analysis of different technological solutions <i>Federico Solari, Natalya Lysova, Gino Ferretti, Andrea Volpi, Michele Bocelli and Roberto Montanari</i> 	

4:00 pm – 5:30 pm CEST Room: ARCHIMEDE	Tue 20th, 2022
<p>Microsoft Teams, Session Link:</p> <p style="text-align: center;">Access the Online Session</p>	
<p>IWISH-MAS: Healthcare Applications - Session II <i>Chair(s): Marco Frascio, University of Genoa</i></p> <ul style="list-style-type: none"> > I3M_1: The Expected Value of Perfect Information of COVID-19 Treatment Using Discrete Event Simulation <i>Doraid Dalalah</i> > I3M_24: Parallelization of large-scale agent-based epidemiological simulations <i>Steffen Fürst and Christian Rakow</i> > I3M_63: CFD analysis of different arterial cannulation site during Heart Surgery with Cardioplumnonary Bypass <i>Gionata Fragomeni, Michele Rossi, Vincenzo Francesco Tripodi, Giuseppe Pisano and Pasquale Fratto</i> 	

- > I3M_71: Model-based Data Fusion using mmWave Radar to Evaluate Posture
Volkhard Klinger
- > I3M_14: Timing analysis of the sanitization process due to the COVID-19 pandemic in an elementary school using simulation
Vianey Michelle Zavala Pérez and Ricardo Torres Mendoza

4:00 pm – 5:30 pm CEST Room: PITAGORA	Tue 20th, 2022
<i>Microsoft Teams, Session Link:</i> Access the Online Session	
Special Session: Strategic Engineering PhD and STRATEGOS <i>Chair: Prof. Agostino G. Bruzzone, University of Genoa, Italy</i> This special session is devoted to present the Strategic Engineering PhD Program and the new Master's Degree Program in Strategic Engineering (STRATEGOS) at University of Genoa, Italy. All the attendees are invited to join to know more about these interesting opportunities and to set-up new collaboration within the framework of the Strategic Engineering PhD Program and STRATEGOS Master's Degree Program.	

I3M 2022 Awards Ceremony

The I3M 2022 Awards will be delivered during the Gala Dinner on September 20th, 2022

8:30 pm – 11:00 pm CEST In presence	Tue 20th, 2022
<i>@ Les Étoiles Restaurant (6th floor), Via dei Bastioni, 1, Roma</i>	
I3M Awards Ceremony	
I3M Best Paper Awards The I3M 2022 Best Paper Award is assigned by the I3M 2022 Best Paper Award International Committee and selected among the top-quality papers presented at I3M based on originality, scientific quality and impact on the manufacturing domain.	
Gianni Cantice Award for Gifted Simulation Students The "Gianni Cantice Research Award for Gifted Simulation Students" will be announced during the I3M Awards Ceremony and attributed to the best simulation student applicants. The Award is entitled to Col. Cantice as recognition for his long activity in Simulation; the Gianni Cantice Award Winner will receive the Award Certificate and a free registration to the next I3M conference. Further information at www.liophant.org/i3m/cantice	
Norbert Giambiasi Award The Norbert Giambiasi Award is entitled to Prof. Norbert Giambiasi as recognition for very highly qualified contribution in Conceptual Modeling and DEVS within International Simulation Community. The Norbert Giambiasi Award Certificate Board selects the paper among best Conceptual Modeling contributions to I3M Conference.	

I3M 2022

Activities and Sessions Details

Wednesday, September 21st

9:00 am – 10:30 am CEST	
Room: LEONARDO	Wed 21st, 2022
<i>Microsoft Teams, Session Link:</i>	
Access the Online Session	
EMSS: Multiphysics Modeling	
<i>Chair(s): Vittorio Solina, University of Calabria</i>	
<ul style="list-style-type: none">> I3M_33: Modelling of the rinsing of a Fixed Bed Reactor for Solid Phase Peptide Synthesis using COMSOL Multiphysics® <i>Raphaël Bayle, Jean-David Wheeler, Renan Ravetti, Patrick Namy and Olivier Ludemann-Hombourger</i>> I3M_36: Modelling of a Multifunction Electromagnetic Interference Shield and Heat Exchanger Device for a Multirotor Drone <i>Jean-David Wheeler, Nicolas Texier, Michelle Malara, Thierry Sanlaville, Vincent Seconda, Vincent Sousselier, Jean-Marc Dedulle and Patrick Namy</i>> I3M_37: Electrostatic and Aerodynamic Modelling of the Charged Droplet Trajectories thanks to a Lagrangian-Eulerian Model in COMSOL Multiphysics® <i>Frédéric Viry, Magali Sturma, Patrick Namy and Bruno Barbet</i>> I3M_38: Optimization of the Drying Time of Industrial Solvents: Numerical Modelling within COMSOL Multiphysics® <i>Frédéric Viry, Magali Sturma, Patrick Namy and Bruno Barbet</i>> I3M_39: Numerical modelling of aluminothermic reduction for low-carbon-footprint silicon production <i>Sergey Semenov, Raphaël Bayle and Patrick Namy</i>> I3M_40: Contact Resistance Influence in Numerical Simulation of Resistance Sintering <i>Josias Amovin-Assagba, Vincent Bruyère, Patrick Namy, Corinne Durand and Sophie Roure</i>	

9:00 am – 10:30 am CEST Room: GALILEO	Wed 21st, 2022
<p><i>Microsoft Teams, Session Link:</i></p> <p style="text-align: center;">Access the Online Session</p>	
<p>MAS: Simulation based Optimization <i>Chair(s): Pasquale Legato and Rina Mary Mazza, University of Calabria</i></p> <ul style="list-style-type: none"> > I3M_15: A generic framework for simulation-based optimization using high-level architecture <i>Mostafa Ali, Emad Mohamed, Lingzi Wu and Simaan Abourizk</i> > I3M_58: Simulation Study on the Influence of Design on the Performance of Dynamic Hybrid Pallet Warehouses <i>Giulia Siciliano, Adrian Branko Moro and Johannes Fottner</i> > I3M_86: Optimizing the order picking process via simulation: a case study <i>Salvatore Alfano, Anna Simona Brettone, Maria Carmela Groccia, Roberto Sia and Antonio Francesco Vita</i> > I3M_118: Event-based modeling and simulation for optimizing order picking <i>Pasquale Legato, Massimiliano Matteucci and Rina Mary Mazza</i> > I3M_133: UGV Digital Twin for garbage detection through AI <i>Giovannetti A., Mashayekhizadeh M., Cefaliello D., Shamlu F., Taib H.</i> 	

9:00 am – 10:30 am CEST Room: ARCHIMEDE	Wed 21st, 2022
<p><i>Microsoft Teams, Session Link:</i></p> <p style="text-align: center;">Access the Online Session</p>	
<p>EMSS-SESDE: Structural and Thermal Simulation Applications <i>Chair(s): Emilio Jimenez, University of La Rioja</i></p> <ul style="list-style-type: none"> > I3M_75: One-way slabs. Modelling and comparison of structural solutions with lattice and pre-tensioned joists <i>Javier Ferreiro-Cabello, Esteban Fraile-Garcia, Borja Oroz Ezquerro, C. Gonzalez-Gonzalez and Emilio Jimenez-Macias</i> 	

- > I3M_76: Fusion welding thermal simulation in corrugated steel for one-way slabs
Javier Ferreiro-Cabello, Esteban Fraile-Garcia, E. Fernández González, C. Gonzalez-Gonzalez and Emilio Jimenez-Macias
- > I3M_78: Structural comparison between two alternatives for a hydroelectric power plant building
J Los-Santos Ortega, Gerardo Anoz Varea, C. Gonzalez-Gonzalez, Javier Ferreiro-Cabello and Emilio Jimenez-Macias
- > I3M_6: Experimental and numerical investigation of the heat transfer in helically coiled tubes heat exchanger and design optimization
Sami Missaoui, Zied Driss, Romdhane Ben Slama and Bechir Chaouachi
- > I3M_129: Strategic engineering for enhancing efficiency and effectiveness of water management systems
Bruzzone A.G., Giovannetti A.
- > I3M_132: Digital twin for pilot plant for water treatment
Bruzzone A.G., Sinelshchikov K., Giovannetti A., De Paoli A., Ferrari R., Gadupuri B., Reverberi A., Tarone F.

<p>9:00 am – 10:00 am CEST Room: PITAGORA</p>	<p>Wed 21st, 2022</p>
<p><i>Microsoft Teams, Session Link:</i></p> <div style="text-align: center;"> <p>Access the Online Session</p> </div>	
<p>Special Session: The ALACRES 2 Project <i>Chair(s): Agostino Bruzzone, University of Genoa</i></p> <p>The main objective of the ALACRES 2 project is the creation of a permanent laboratory capable of identifying, testing and validating the integrated emergency management procedures in the event of significant accidents, crises or accidents occurring in the loading and unloading phases of dangerous goods and substances.</p> <p>To achieve this goal, the partners are currently investigating the behaviours of the various operational figures called to manage emergencies, testing new behavioural protocols, new operational standards, new forms of monitoring and new support technologies.</p> <p>This Special Session is an opportunity to get in touch with the ALACRES 2 team and to establish new collaborations and to think about new research project proposals. All I3M attendees are welcome to participate!</p>	

10:00 am – 10:30 am CEST Room: PITAGORA	Wed 21st, 2022
<i>Microsoft Teams, Session Link:</i> <div style="text-align: center; background-color: #FFD700; padding: 5px; border: 1px solid black;"> Access the Online Session </div>	
<p>Special Session: Safety and Security in Marine Ports <i>Chair(s): Agostino Bruzzone, University of Genoa</i></p> <p>This session is devoted to present the results of the I4D3A2 R&D project carried out by Simulation TEAM from University of Genoa (Italy) in collaboration with INAIL and other Italian Universities. Projects are focused on safety and security in maritime ports where the Simulation TEAM of University of Genoa has acquired, over the years, a strong experience by developing several advanced solutions by integrating multiple enabling methodologies and technologies (to cite a few: Simulation, Virtual Reality, Augmented Reality, Serious Games, Intelligent Agents, etc.).</p> <p>The Special Session is also an opportunity to establish new collaborations and to think about new research project proposals. All I3M attendees are welcome to participate!</p>	

10:30 am – 11:00 am CEST

Coffee Break

11:00 am – 12:30 pm CEST Room: LEONARDO	Wed 21st, 2022
<i>Microsoft Teams, Session Link:</i> <div style="text-align: center; background-color: #FFD700; padding: 5px; border: 1px solid black;"> Access the Online Session </div>	
<p>EMSS: Simulation in Finance and Economy <i>Chair(s): Pasquale Legato and Rina Mary Mazza, University of Calabria</i></p> <ul style="list-style-type: none"> > I3M_91: Customer Behaviour Classification Using Simulated Transactional Data <i>Ryan Butler, Ethan Hinton, Max Kirwan and Abraham Salih</i> > I3M_88: Co-evolutionary Dynamics in a Simulation of Interacting Financial-Market Adaptive Automated Trading System <i>Dave Cliff</i> > I3M_95: Simulation of Front-Running Attacks and Privacy Mitigations in Ethereum Blockchain <i>Zachary Stucke, Theodoros Constantinides and John Cartlidge</i> 	

- > I3M_127: Flexible pricing based on strategic engineering in retail sector
Bruzzone A.G., Sinelshchikov K., Cardelli M., Schmidt W.

11:00 am – 12:30 pm CEST Room: GALILEO	Wed 21st, 2022
<p>Microsoft Teams, Session Link:</p> <p style="text-align: center;">Access the Online Session</p>	
<p>MAS: Logistics & Manufacturing <i>Chair(s): Marina Massei, University of Genoa</i></p> <ul style="list-style-type: none"> > I3M_3: Automation of the Manufacturing Process Mapping in the Context of VSM by Utilization of ERP Data <i>Tim Wollert and Fabian Behrendt</i> > I3M_31: Modelling supply chain coordination using multidimensional auctions <i>Petr Fiala and Renata Majovská</i> > I3M_61: Repacking line simulation for a small enterprise supplier of the dairy industry <i>Jorge Luis Torres Miranda, Azahed Arturo Hernández Cuéllar, Cristina Delval González and Sergio Iván Lozada Reyes</i> > I3M_67: Design and analysis of alternatives for the supply of components within the production facilities of new customers of a company with a full-service provider model <i>Ariana Gazcón-Rivera, Jenaro Nosedal-Sánchez, Luis Armando Peña-González and Javier Garcia-Gutierrez</i> > I3M_126: Digital twins for developing innovative industrial autonomous system <i>Bruzzone A.G., Sinelshchikov K., Giovannetti A., Pernas J.</i> 	

11:00 am – 12:30 am CEST Room: ARCHIMEDE	Wed 21st, 2022
<p>Microsoft Teams, Session Link:</p> <p style="text-align: center;">Access the Online Session</p>	
<p>EMSS: Workshop on M&S in Advanced Physics Technologies <i>Chair(s): Eleonora Bottani, University of Parma</i></p>	

- > I3M_55: Simulation of terahertz photonic integrated phased array antenna
Sergey Seliverstov, Sergey Svyatodukh, Aleksey Prokhodtsov and Gregory Goltsman
- > I3M_57: Multimode interference splitter and Mach-Zehnder interferometer based on silicon metamaterial for sub-THz range
Sergey Svyatodukh, Sergey Seliverstov, Alexey Prokhodtsov, Ilia Venediktov, Margaret Polyakova, Galina Chulkova and Gregory Goltsman
- > I3M_70: Parametric model of a dielectric rod antenna array for terahertz applications
Anatoliy Prikhodko, Terentiy Yaroplov, Alexander Shurakov and Gregory Gol'Tsman
- > I3M_82: A comparison study of a quality of transmission for an analog fiber-optic interconnect line with direct or external modulation
Mikhail Belkin, Mikhail Sizov, Anna Voronina and Oleg Gorbachev

<p>11:00 am – 12:30 am CEST Room: PITAGORA</p>	<p style="text-align: right;">Wed 21st, 2022</p>
<p><i>Microsoft Teams, Session Link:</i></p> <p style="text-align: center;">Access the Online Session</p>	
<p>Special Session: EUROSIM Board Meeting <i>Chair(s): Miguel Mújica Mota, Paolo Scala, Amsterdam University of Applied Sciences</i></p> <p>This session hosts the annual meeting of the EUROSIM. EUROSIM is the Federation of European Simulation Societies and provides a European forum for regional and national simulation societies to promote the advancement of modelling and simulation in industry, research and development. Under the EUROSIM umbrella, EUROSIM Member Societies and co-operating societies and groups organize conferences, produce publications on modelling and simulation, work in standardizing or technical committees, etc. Simulation Notes Europe (SNE) is the official membership journal of EUROSIM.</p>	

12:30 PM – 1:00 PM CEST (During Luncheon)	Wed 21st, 2022
<u>Only in Presence</u>	
<p>I3M 2022 Closing Ceremony <i>Chairs: Agostino Bruzzone, University of Genoa, Italy; Francesco Longo, University of Calabria, Italy.</i></p> <p>All “in presence” attendees are invited to join the I3M 2022 Closing Ceremony. The Closing Ceremony is a nice opportunity to wrap-up the conference experience and to say hello each other waiting for the next I3M edition (2023) that will be held in Athens, Greece.</p>	

I3M Social Events

The I3M Local Organization Committee has organized two main Social Events for I3M 2022. Please find below the relevant information.

I3M 2022 Ice Breaker

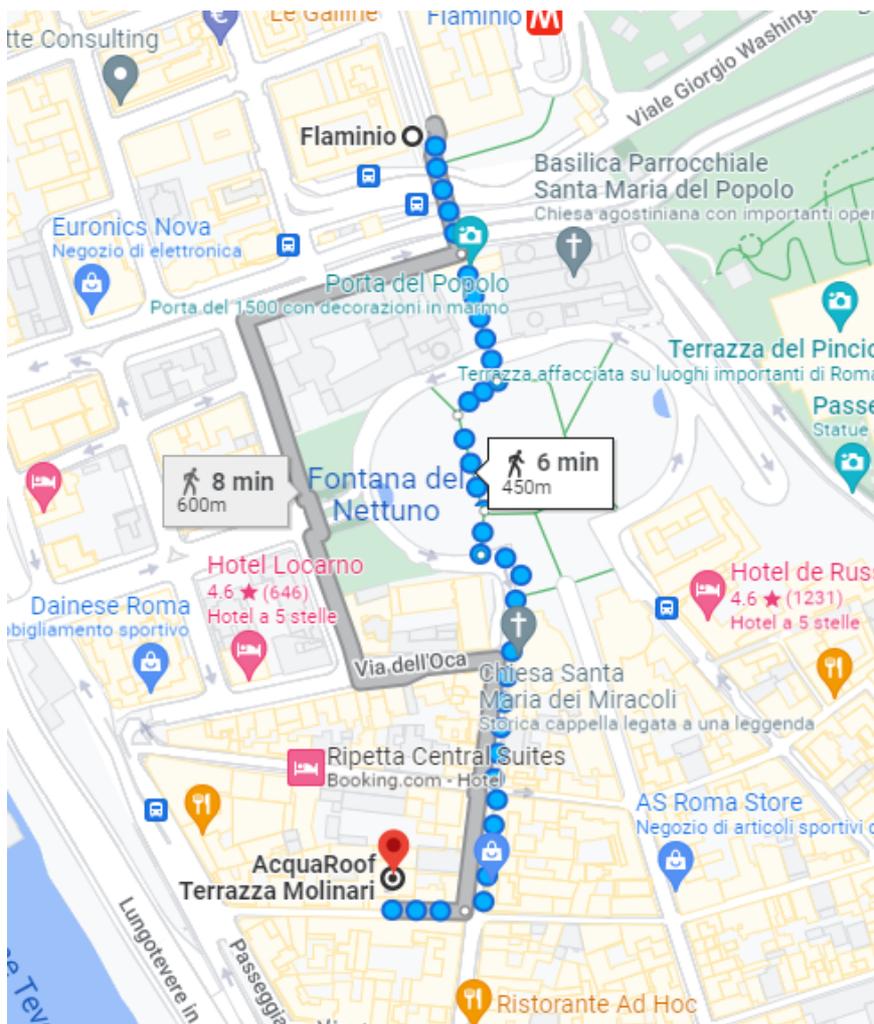
The *I3M 2022 Ice Breaker* is a special aperitif that the I3M Organization Committee has organized to celebrate together the return, after 2 years, of the physical conference.

The I3M 2022 Ice Breaker will be held in the *Acquarroof Terrazza Molinari, via del Vantaggio 14, Roma*.

To reach the *Acquarroof Terrazza Molinari* you can catch a taxi or you can use public transportation.

Reaching *Acquarroof Terrazza Molinari* by public transportation:

- > Underground (METRO), Line A, stop at *Flaminio Station*.
- > Walk for approximately 450 m, through *Piazza del Popolo* and then through *Via di Ripetta* (blue line in the picture below) and reach the *Acquarroof Terrazza Molinari*. Alternatively you can walk approximately 600m through *Via Principessa Clotilde* (grey line in the picture below).



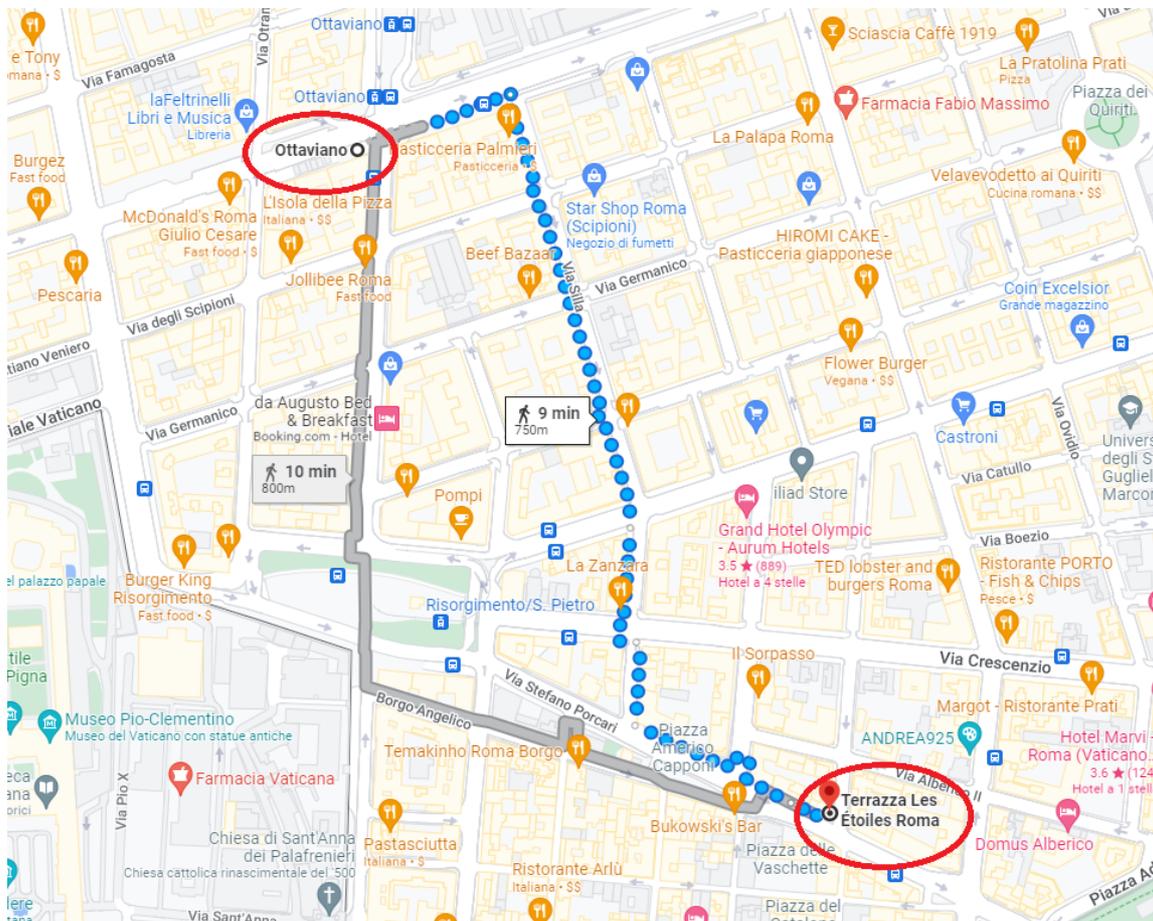
I3M 2022 Gala Dinner

The I3M 2022 Gala Dinner will be held on Tuesday, September 20th, 2022 at *Les Étoiles Restaurant* (6th floor), *Via dei Bastioni, 1, Roma*. Formal dressing is required.

To reach the *Les Étoiles Restaurant* you can catch a taxi or you can use public transportation.

Reaching *Les Étoiles Restaurant* by public transportation:

- > Underground, Line A and stop at *Ottaviano Station*
- > Walk for approximately 750 m, through *Via Silla* (blue dot-line in the picture below) and reach the *Les Étoiles Restaurant*. Alternatively you can walk approximately 800m through *Via Ottaviano* and *Via Borgo* (grey line in the picture below).



I3M Proceedings Publication

The I3M organization Committee is carrying out a major effort to improve the visibility of the I3M articles.

Therefore, all the I3M proceedings are published as open access and will be available at <https://www.cal-tek.eu/proceedings/>.

The I3M Proceedings will be indexed in SCOPUS and will be also provided with a DOI. The DOI will be also communicated to SCOPUS to allow link connection between the SCOPUS webpage of the article and the webpage where the PDF of the article is available for download.

DOIs coverage for the previous years editions of I3M is ongoing.

International Journal Special Issues

The Organization Committee will tentatively set-up the following International Journals Special Issues.

- International Journal of Simulation and Process Modeling
- International Journal of Food Engineering
- International Journal of Privacy and Health Information Management
- IEEE Transactions on Engineering Management (IEEE TEM)
- Journal of Simulation



I3M 2022 Authors and Chairs Guideline

Author and Chair Guidelines for the I3M2022 Hybrid Conference are available in the conference website at:

www-msc-les.org/i3m2022

Please check them in order to properly deliver your presentation in the best way avoiding any inconvenience.

I3M 2022 as evolving framework

Dear attendee, the 2022 edition of I3M will be held as a hybrid event (both in presence and online). Please check the website for additional information at:

www.msc-les.org/i3m2022

Alternatively, you can write to Prof. Francesco Longo (f.longo@unical.it).

The whole I3M 2022 Organization Committee is glad to see you in Rome and online. We really hope you will enjoy the hybrid conference, therefore we are looking forward to further develop and improve the I3M conference in 2023 in Athens (Greece).

By participating in I3M it is evident that a major stronghold of this Multi-Conference is its capability to mix very experienced people with young blood. So we will be glad if you could consider to be more involved in the 2023 edition by submitting session or track proposals, by proposing new topics or by providing your availability for being a candidate for paper review. In addition, please feel free to share any comment and suggestion to improve the conference to Prof. Francesco Longo, I3M Program Chair (f.longo@unical.it).

I3M Synergies & Other Opportunities

The I3M organization Committee is working in synergies with other International Conferences to provide attendee with additional publication opportunities and professional training.

WAMS 2022

WAMS 2022, the International Workshop in Applied Modeling & Simulation will be held in Bergeggi (Italy). Please consider to be active and to participate in this thematic workshop. For further information please check the web site:

<http://www.liophant.org/conferences/2022/wams/>

You can also write to Dr. Marina Massei (marina.massei@liophant.org)

ISM 2022

The ISM 2022 will be held in Linz (Austria) and provides a unique opportunity to meet scientists, researchers and company managers who are working in the area of Smart Manufacturing and Industry 4.0. For further information please check the web site:

<http://www.msc-les.org/ism2022>

You can also write to Dr. Antonio Padovano (antonio.padovano@unical.it)

So we will be glad if you could consider to be more involved in future events by submitting session or track proposals, by proposing new topics or by providing your availability for being candidate for paper review or by inviting companies and managers to attend the ISM 2022 event.

Synergies & Other Opportunities

The I3M organization Committee is working in synergies with other International Conferences to provide attendee with additional publication opportunities and professional training.

SIREN M&S Courses

The Modeling & Simulation Professional Courses are organized with scientific sponsorship of MITIM DIME University of Genoa, Simulation Team, MSC-LES University of Calabria and Liophant. Attendees have the opportunity to select among different M&S courses levels (i.e. Fundamentals, Regular, Advanced Educational Package) and categories (i.e. M&S, VV&A, PM and Interoperability). Each M&S course includes lecturing and exercises provided by world-wide experts, with several years of experience, from major center of excellence, i.e. MITIM-DIME University of Genoa, Virginian Modeling & Simulation Center (VMASC), GrVa Universidad Federal de Rio de Janeiro, LSIS Marseille, MAST, MSC-LES, National Center for Simulation (NSC), NASA, Riga TU, UAB, University of Arizona, etc. If you are interested in next SIREN Courses please visit www.mastsrl.eu/mscourses or contact info@mastsrl.eu.

SILENI

SILENI (Simulation LEarning iNitiative) is an initiative devoted to promote M&S applied to real problems with special attention to Defense and Industry; SILENI promotes Seminars, Courses and Lectures on application of M&S. The name SILENI (Simulation LEarning iNitiative) is inspired by Greek mythology where Sileni (companions of Dionysus) were said to possess special knowledge and power of prophecy such as Modeling & Simulation. If you are interested in next SILENI Initiatives and Seminars please visit www.liophant.org/sileni or contact info@liophant.org