

IAMES2024

3rd IFAC workshop on Integrated Assessment Modeling for Environmental Systems

| Wednesday May 29 | | | | |
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| Sustainable resources management | | | | |
| From 11.30 | MA218 | Registration | | |
| 11.30-13.00 | MA218 | Technical Committee meeting | | |
| 13.30-14.30 | Canteen | Welcome Lunch | | |
| 14.30-14.40 | AN1 | IAMES Opening | Marco Testa (Delegate of the Rector for Savona Campus) Ronald van Nooijen (Chair of IFAC CC6-Bio- and Ecological Systems) Marialuisa Volta (Chair of IFAC TC 6.3- Modelling and Control of Environmental Systems) Michela Robba (Chair of IAMES 2024) | |
| Chair: Marialuisa Volta | | | | |
| 14.40-14.55 | AN1 | Plenary | Roadmap of Italian Universities to Sustainability: the case of Genoa University | Michela Gallo (National coordinator of the Working Group on Climate Change of the Italian Network of Sustainable Universities) |
| 14.55-15.40 | AN1 | Plenary | Changing climate and technology reshape the future of African hydropower | Andrea Castelletti (Polytechnic of Milan) |
| 15.40-16.00 | AN1 | Industrial Keynote | Process flexibility and environmental sustainability towards RElls' decarbonization: two European case studies | Luca Moreschi (STAM) |
| 16.00-16.30 | Canteen | Coffee Break | | |
| 16.30-17.30 | MA218 | Invited Session: <i>Advanced design, retrofit, operation and maintenance of water resources systems</i> (Chairs: Silvia Maria Zanoli, Crescenzo Pepe, Maria Macchiaroli) | | |
| 16.30-16.45 | MA218 | Promotion of Socio-Environmental Sustainability by Water Utilities: Optimal Budget's Estimation and Results' Analysis of Varying Company Size | | Luigi Dolores*, Maria Macchiaroli, Gianluigi De Mare |

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| 16.45-17.00 | MA218 | Unknown Input Observer Scheme for Open-flow Irrigation Channels | Juan Pablo Arango Restrepo*, Lucien Etienne, Gregory Conde, Eric Duviella, Kokou Languéh, Vicenç Puig, Pablo Segovia, Nicanor Quijano, Carlos Ocampo-Martinez |
| 17.00-17.15 | MA218 | Assessment model of tariff structure for sustainable management of water resources systems | Maria Macchiaroli |
| 17.15-17.30 | MA218 | Model Predictive Control for water management of a two-reservoir hydroelectric power plant | Silvia Maria Zanoli |
| 17.30-18.30 | MA218 | <i>Integrated Water Management</i> (Chairs: Henry Baumann, Javier García Martín) | |
| 17.30-17.45 | MA218 | A comparison of physics- and data-based modeling of rural drainage systems | Henry Baumann*, Alexander Schaum, Nanna Høegh Ravn, Thomas Meurer, Lina Nybo Jensen |
| 17.45-18.00 | MA218 | Situation and ordering based control of a polder-boezem system | Ronald Robert Paul van Nooijen*, Alla G. Kolechkina, Thomas Berends, P. E. R. M. van Leeuwen |
| 18.00-18.15 | MA218 | Multi-set based model predictive control to explore large freshwater resources | Javier García Martín*, Alejandro Anderson, Ignacio J. Sánchez, Agustina Djorge, Eric Duviella, Jose M. Maestre |
| 18.15-18.30 | MA218 | A Mixed-Integer Dynamic and Stochastic Algae Process Optimization | Sercan Kivanc, Ozgun Deliismail, Hasan Sildir* |

Thursday May 30

Sustainable energy

Chair: Virginia Casella

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| 9.00-10.00 | AN1 | Plenary | Distributed Optimization in a Renewable-rich Grid Edge | Anuradha Annaswamy (Massachusetts Institute of Technology) |
| 10.00-10.15 | AN1 | Industrial Keynote | Information Technology supporting decision-making in energy distribution | Antonio Iavarone (Head of Digital Innovation at IREN Group) |
| 10.15-10.30 | AN1 | Industrial Keynote | Energy-related controls for electric vehicles | IVECO Alessio Canepa (Electrification Technologies - Head of Simulation & Controls) Gianluca Donato (Electrification Technologies - Head of Energy Eco-system) |
| 10.30-10.45 | AN1 | Industrial Keynote | Training and technological transfer for sustainable energy: synergies between University and companies | Elisabetta Arato (President Innovation Pole on Energy, Environment and Sustainable Development) |
| 10.45-11.15 | Canteen | Coffee Break | | |

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| 11.15-12.15 | MA218 | Invited Session: <i>Sustainable Districts' Optimization and Control</i> (Chairs: Luca Parodi, Yassine Ennassiri) | |
| 11.15-11.30 | MA218 | Optimization of Electric Bus Charging: Integrating Discrete Event Modeling in Public Transportation Systems | Virginia Casella, Riccardo Minciardi, Luca Parodi* |
| 11.30-11.45 | MA218 | Influence of Distributed Energy Resources on the performance of phase topology identification in distribution networks | Sebastián García*, Stefano Bracco, Javier M. Mora-Merchán, Diego F. Larios, Enrique Personal, Carlos León |
| 11.45-12.00 | MA218 | Modeling of Photovoltaic-Thermal Systems Using Multivariate Polynomial Regression | Kamran Moradi, Fereshteh Jafari, Fariba Moghaddam*, Qobad Shafiee |
| 12.00-12.15 | MA218 | Nonlinear System Identification and Predictive Control for Waste Heat Recovery with Heat Pumps | Ansgar Reimann*, Jan Küpper, Max Rose, Johannes Schiffer |
| 12.15-13.00 | MA218 | <i>Energy Systems</i> (Chairs: Antonio Parejo, Daniel Fernandez Valderrama) | |
| 12.15-12.30 | MA218 | On the Use of Optimized Models for Energy Management System in Multi Energy Hydrogen and Electric Vehicle Applications | Marco Giuntoli*, Marina Santarelli, Pablo Almaleck, Francesco Baccino, Mara Cosentino, Pietro Serra, Katarzyna Furmanska |
| 12.30-12.45 | MA218 | Smart Grid Stochastic optimization with Ant Colony-based Scenario Generation | Daniel Fernandez Valderrama*, Giulio Ferro, Juan Ignacio Guerrero, Carlos León, Luca Parodi, Michela Robba |
| 12.45-13.00 | MA218 | CCEM: A System Dynamics Earth Model for Capturing Beliefs Related to the Coupling of Energy, Economy and Global Warming | Yves CASEAU |
| 13.30-14.30 | Canteen | Lunch | |
| 14.30-15.30 | MA218 | Invited Session: <i>Optimization and Simulation of RES-integrated Electric Mobility Systems</i> (Chairs: Stefano Bracco, Matteo Fresia) | |
| 14.30-14.45 | MA218 | Optimal Operation of an Innovative Electric Vehicle Charging Hub directly fed by Renewables | Alphonse Francis*, Matteo Fresia, Stefano Bracco, Edoardo Barabino |
| 14.45-15.00 | MA218 | Probabilistic Power Forecasting in a Microgrid for the Integration of Distributed Energy Resources | Antonio Parejo*, Stefano Bracco, Sebastián García, Enrique Personal, Juan Ignacio Guerrero, Carlos León (Spain) |
| 15.00-15.15 | MA218 | Energy Management System for a Smart Green Nanogrid feeding a Research Laboratory with Autonomous Mobile Robots | Matteo Fresia*, Lorenzo De Simone, Ilaria Traverso, Stefano Bracco, Silvia Siri |
| 15.15-15.30 | MA218 | Evaluation and Refinement of a Novel Data-Driven Inverse Integrated Assessment Model focusing on Primary Energy | Iman Goudarzi*, M. Dekker Mark, Giorgio Guariso, van Vuuren Detlef |
| 15.30-15.45 | MA218 | A Tool to Optimize the Participation of BESS to the UK Ancillary Services Market | Virginia Casella, Alice La Fata*, Stefano Suzzi, Giulia Barbero, Riccardo Barilli |

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| 15.45-16.00 | MA218 | SustainableTech - A Holistic Framework for Integrated Techno-Economic and Sustainability Assessments | Thiago L. Silva*, Elijah Tremblay, Tuva Grytli, Ragnhild Skagestad, Nils Eldrup |
| 16.30-19.30 | Noli | Tour | |
| 19.30-23.00 | Spotorno | Social Dinner | |

| Friday May 31 | | | | |
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| Risk Management and Sustainability | | | | |
| Chair: Paola Girdinio | | | | |
| 9.00-9.45 | AN1 | Plenary | On-the-field data collection and numerical wildfire simulation for risk management of firefighting activities | Emanuele Gissi (Italian Fire and Rescue Service, Italy) |
| 9.45-10.00 | AN1 | Plenary keynote | Natural and Technological risk assessment and management: the experience of CIMA Research Foundation | Eva Trasforini (International Centre for Environmental Monitoring - CIMA Research Foundation) |
| 10.00-10.15 | AN1 | Industrial Keynote | Innovation and technological transfer for risk management and security | Georgia Cesarone (President of START 4.0 National Competence Center on security and optimization of strategic infrastructures) |
| 10.15-10.30 | AN1 | Industrial Keynote | Security and ICT in risk management | START 4.0 |
| 10.30-11.00 | AN1 | Plenary | Models as maps: how integrated assessment tools can be used to support decision making | Fabian Wagner (Dean for Capacity Development and Academic Training, IIASA-International Institute for Applied Systems Analysis) |
| 11.00-11.30 | Canteen | Coffee Break | | |
| 11.30-13.30 | MA218 | Technical Session: Risk Management and sustainability (Chairs: Ronald Robert Paul van Nooijen, Carmen Martin) | | |
| 11.30-11.45 | MA218 | Machine Learning-Driven Dynamic Maps Supporting Wildfire Risk Management | | Nicolò Perello*, Giorgio Meschi, Andrea Trucchia, Mirko d'Andrea, Francesco Baghino, Silvia degli Esposti, Paolo Fiorucci |
| 11.45-12.00 | MA218 | Operational Application of Mathematical Modeling for Enhanced Wildfire Risk Management in Liguria | | Francesco Baghino*, Emanuele Gissi, Nicolò Perello, Paolo Fiorucci |
| 12.00-12.15 | MA218 | Laying the foundations for the dysfunctional analysis of a territory | | Francois Pérès, Jose Galindo Barco, Carmen Martin, Jagannath Aryal |
| 12.15-12.30 | MA218 | Integrating Indigenous Knowledge and Scientific Approaches for Flood Risk Management in Somalia | | Ali Abdullahi Abdi |

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| 12.30-12.45 | MA218 | Bayesian identification and stochastic model predictive control for water level regulation in a lake | Muhammad Jibrán*, Erik Weyer, Wenyan Wu |
| 12.45-13 | MA218 | Automated generation of hydraulic models and its use for sensitivity analysis: Channel response time sensitivity | Ronald Robert Paul van Nooijen*, Alla G. Kolechkina |
| 13.30-14.30 | Canteen | Lunch | |
| 14.30-16.30 | MA218 | Technical Session: Sustainable mobility and air pollution (Chairs: Giorgio Guariso, Mohammad Javad Jafari) | |
| 14.30-14.45 | MA218 | Optimal Strategies for Climate Change Mitigation | Michele Arrighini*, Laura Zecchi, Claudio Marchesi, Marialuisa Volta |
| 14.45-15.00 | MA218 | A second-order dynamic model of the mean global carbon cycle | Enrico Canuto, Daniele Mazza, Carlo Novara* |
| 15.00-15.15 | MA218 | Truck Emission Forecasting and Peak Mitigation in a Port Terminal | Rexhina Hoxha*, Stefano Cangelosi, Simona Sacone, Enrico Zero |
| 15.15-15.30 | MA218 | The role of energy policies for air pollution control in the Po Valley | Laura Zecchi*, Michele Arrighini, Giorgio Guariso, Marialuisa Volta |
| 15.30-15.45 | MA218 | Designing Diversity-aware Sustainable Mobility Policies in Social Networks: a Data-driven Approach | Eugenia Villa*, Francesco Govigli, Valentina Breschi, Mara Tanelli |
| 15.45-16.00 | MA218 | Optimizing a Capacitated Vehicle Routing Problem with Scheduled Arrival, Split Deliveries within Time Windows and Emission Consideration | Mohammad Javad Jafari*, Giulio Ferro, Alessandro Magni, Alberto Mereu, Riccardo Minciardi, Massimo Paolucci, Michela Robba |
| 16.00-16.15 | MA218 | Towards Sustainable Last-Mile Delivery: Introducing an Off-Peak Urban Policy to Mitigate Environmental and Social Impacts | Renata MANSINI, Filippo Ranza*, Roberto Zanotti |
| 16.30 | | IAMES CLOSURE | |

Corresponding author*

MA218 room in second floor of Marchi Building (see the map at the entrance)

AN1 room at the end of the Savona Campus (see the map at the entrance)

