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unite!

University Network for Innovation,
Technology and Engineering

The 1st Unite! Spring School on Sustainable Energy

Master Thesis opportunities towards a European PhD

mon 17th – wed 19th May 2021, 9.00 am – 6.00 pm CEST


















International Program Committee

S. Cross (Aalto University); T. Drobek (Technical University of Darmstadt); R. Khodabandeh (KTH Royal Institute of Technology); F. Montemor (IST / Universidade de Lisboa); F. Sepulcre Sánchez (Universitat Politècnica de Catalunya); J.-L. Schanen (INP / Université Grenoble Alpes); R. Zanino (Politecnico di Torino)











Local Organizing Committee











M. L. Aghemo; A. Armao; R. Bertolasco; M. Bonino; E. Brusa; C. Castro; S. Cravero; M. Ferraris; A. Godio; M. Pioletti; P. Rossi; E. Zandri

Academic program (DAY 1. Monday, May 17th)

May 17 th AM	<p>9:00-9:10 Welcome, <i>Guido Saracco, Rector @PoliTO</i> </p> <p>9:10-9:30 Unite! & this Spring School: introduction, <i>Roberto Zanino, Vice Rector for European Relations @PoliTO</i> </p> <p>9:30-10:30 ENERGY STORAGE </p> <p>Overview of renewable energy conversion and storage technologies, <i>Jan Philipp Hofmann (TU Da)</i> Thermal Energy Storage, <i>Justin NW Chiu (KTH)</i> Mechanical Energy Storage-Flywheel, <i>Stephan Rinderknecht (TU Da)</i></p> <p>10:30-11:00 Coffee break / Q&A and networking with teachers and student moderation </p> <p>11:00-12:00 FUEL CELLS </p> <p>High and low temperature fuel cells for stationary and transport applications; current status, challenges and future perspectives, <i>Massimo Santarelli/Federico Smeacetto (PoliTO) & Rakel Wreland Lindström (KTH)</i></p> <p>12:00-12:30 Testimonial on the life of a Unite! PhD student at Aalto </p> <p>12:30-1:00 Q&A and networking with teachers and student moderation </p> <p>1:00-2:00 Lunch break</p>
May 17 th PM	<p>2:00-2:30 Introduction to serious games </p> <p>2:30-3:30 ELECTROCHEMICAL ENERGY STORAGE SYSTEMS: PRESENT ADVANCES AND FUTURE CHALLENGES </p> <p>Li-based batteries towards the next decade, <i>Claudio Gerbaldi (PoliTO)</i> Fit for purpose asymmetric supercapacitors - Filling the gap between ultracapacitors and batteries, <i>Fatima Montemor (ULisboa)</i> Redox flow batteries for renewable energy storage, <i>Rakel Wreland Lindström (KTH)</i> Advanced operando characterizations of batteries at large scale facilities, <i>Claire Villevieille (INP-UGA)</i></p> <p>3:30-4:00 Coffee break / networking with teachers and student moderation </p> <p>4:00-5:00 HYDROGEN -- GENERATION & PRODUCTION </p> <p>How to produce hydrogen? Electrolysis and catalytic routes, <i>Florence Druart (INP-UGA) & Jordi Ilorca (UPC)</i></p> <p>5:00-5:30 Testimonial on the life of a Unite! PhD student at UPC </p> <p>5:30-6:00 Q&A and networking with teachers and student moderation </p>

Academic program (DAY 2. Tuesday, May 18th)

May 18 th AM	<p>9:30-10:30 CATALYSTS </p> <p>Catalysts for energy applications – From State-of-the art to future perspective, <i>Ulrike I. Kramm (TU Da) & Stefania Specchia (PoliTO)</i></p> <p>10:30-11:00 Coffee break / Q&A and networking with teachers and student moderation </p> <p>11:00-12:00 HYDROGEN -- APPLICATIONS & FINAL USES </p> <p>Green hydrogen for carbon-free and carbon-neutral energy conversion, <i>Andrea Lanzini (PoliTO) & Christian Hasse (TU Da)</i></p> <p>12:00-12:30 Q&A and networking with teachers and student moderation </p> <p>12:30-1:15 BUSINESS LUNCH </p> <p><i>with Francesco La Camera, Director-General of the International Renewable Energy Agency (IRENA)</i></p>
May 18 th PM	<p>1:15-1.30 Break</p> <p>1:30-2:00 Testimonial on the life of a Unite! PhD student at TU Da </p> <p>2:00-3:30 Serious game #1 </p> <p>3:30-4:00 Coffee break</p> <p>4:00-5:00 SUSTAINABLE NUCLEAR </p> <p>Generation IV Fission Reactors, <i>Elsa Merle (INP-UGA)</i></p> <p>Materials Modelling and Development for Nuclear Reactors, <i>Andrea Sand (Aalto)</i></p> <p>Shall we ever see a kWh from a Fusion Reactor?, <i>Roberto Zanino (PoliTO)</i></p> <p>5:00-5:30 Testimonial on the life of a Unite! PhD student at ULisboa </p>
	<p>5:30-6:00 Q&A and networking with teachers and student moderation </p>

May 19 th AM	<p>9:30-10:30 SMART GRIDS </p> <p>What is a smart grid, <i>Lennart Söder (KTH)</i> Microgrids as elementary cells of smart grids, <i>Vincent Debusschere (INP-UGA)</i></p> <p>10:30-11:00 Coffee break / Q&A and networking with teachers and student moderation </p> <p>11:00-12:00 BIOENERGY </p> <p>LCA of bioenergy systems – Methods and Issues in accounting lifecycle GHG emissions, <i>Dilip Khatiwada (KTH)</i> Biotechnological processes for energy production, <i>Tonia Tommasi (PoliTO)</i> Biofuel & bioenergy chains and policies, <i>David Chiaramonti (PoliTO)</i></p> <p>12:00-12:30 Testimonial on the life of a Unite! PhD student at INP-UGA </p> <p>12:30-1:00 Q&A and networking with teachers and student moderation </p>
May 19 th PM	<p>1:00-2:00 BUSINESS LUNCH with <i>Marloes Wichink Kruit, Human Capital Manager, EIT-InnoEnergy</i> & <i>Rita Paleta, Digital Education Manager, EIT-InnoEnergy</i> </p> <p>2:00-3:30 Serious game #2 </p> <p>3:30-4:00 Coffee break</p> <p>4:00-5:00 SMART ENERGY SYSTEMS </p> <p>Future renewable-energy-based smart grids, <i>Eduardo Prieto Araujo (UPC)</i> Interaction between smart grids and other energy vectors, <i>Gianfranco Chicco (PoliTO)</i></p> <p>5:00-5:30 Q&A and networking with teachers and student moderation </p>
	<p>5:30-6:00 Wrap-up and closure </p>



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