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University Network for Innovation,  
Technology and Engineering

# The 1<sup>st</sup> Unite! Spring School on Energy

*Master Thesis opportunities on Sustainable Energy towards  
an European PhD*

**PRELIMINARY**



# Academic program (DAY 1. Monday, May 17<sup>th</sup>)



2

May 17<sup>th</sup> AM

9:00-9:30 **Welcome**

9:30-10:30 **ENERGY STORAGE**

Overview of renewable energy conversion and storage technologies, *Jan Philipp Hofmann (TUDA)*

Thermal Energy Storage, *Justin NW Chiu (KTH)*

Mechanical Energy Storage-Flywheel, *Stephan Rinderknecht (TUDA)*

10:30-11:00 **Coffee break / networking with moderator**

11:00-12:00 **FUEL CELLS**

High and low temperature fuel cells for stationary and transport applications; current status, challenges and future perspectives,

*Massimo Santarelli/Federico Smeacetto (POLITO) & Rakel Wreland Lindström (KTH)*

12:00-12:30 PhD testimonial on **Area A** (including the life of a PhD student in **university U1**)

12:30-2:00 **Lunch break**

May 17<sup>th</sup> PM

2:00-2:30 **Introduction to serious games**

2:30-3:30 **ELECTROCHEMICAL ENERGY STORAGE SYSTEMS: PRESENT ADVANCES AND FUTURE CHALLENGES**

Li-based batteries towards the next decade, *Claudio Gerbaldi (Politecnico di Torino)*

Fit for purpose asymmetric supercapacitors - Filling the gap between ultracapacitors and batteries, *Fatima Montemor (UL)*

Redox flow batteries for renewable energy storage, *Rakel Wreland Lindström (KTH)*

Advanced operando characterizations of batteries at large scale facilities, *Claire Villevieille (UGA)*

3:30-4:00 **Coffee break / networking with moderator**

4:00-5:00 **HYDROGEN -- GENERATION & PRODUCTION**

How to produce hydrogen? Electrolysis and catalytic routes, *Florence Druart (UGA) & Jordi Ilorca (UPC)*

5:00-5:30 PhD testimonial on **Area B** (including the life of a PhD student in **university U2**)

5:30-... **SPATIAL CHAT – Social event**

May 18 <sup>th</sup> AM	<p>9:30-10:30 <b>CATALYSTS</b> Catalysts for energy applications – From State-of-the art to future perspective, <i>Ulrike I. Kramm (TUDA) &amp; Stefania Specchia (POLITO)</i></p> <p>10:30-11:00 Coffee break / networking with moderator</p> <p>11:00-12:00 <b>HYDROGEN -- APPLICATIONS &amp; FINAL USES</b> Green hydrogen for carbon-free and carbon-neutral energy conversion, <i>Andrea Lanzini (POLITO) &amp; Christan Hasse (TUDA)</i></p> <p>12:00-12:30 PhD testimonial on Area C (including the life of a PhD student in university U3)</p>
May 18 <sup>th</sup> PM	<p>12:30-2:00 BUSINESS LUNCH (presentation by external stakeholder)</p> <p>2:00-3:30 Serious game #1</p> <p>3:30-4:00 Coffee break / networking with moderator</p> <p>4:00-5:00 <b>SUSTAINABLE NUCLEAR</b> Generation IV Fission Reactors, <i>Elsa Merle (UGA)</i> Materials Modelling and Development for Nuclear Reactors, <i>Andrea Sand (AALTO)</i> Shall we ever see a kWh from a Fusion Reactor?, <i>Roberto Zanino (POLITO)</i></p> <p>5:00-5:30 PhD testimonial on Area D (including the life of a PhD student in university U4)</p>
	<p>5:30-... <b>SPATIAL CHAT – Social event</b></p>



May 19 <sup>th</sup> AM	<p>9:30-10:30 <b>SMART GRIDS</b> What is a smart grid, <i>Lennart Söder (KTH)</i> Microgrids as elementary cells of smart grids, <i>Vincent Debusschere (UGA)</i> 10:30-11:00 Coffee break / networking with moderator 11:00-12:00 <b>BIOENERGY</b> 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 &amp; bioenergy chains and policies, <i>David Chiaramonti (POLITO)</i> 12:00-12:30 PhD testimonial on Area E (including the life of a PhD student in university U5)</p>
May 19 <sup>th</sup> PM	<p>12:30-2:00 BUSINESS LUNCH (presentation by external stakeholder) 2:00-3:30 Serious game #2 3:30-4:00 Coffee break / networking with moderator 4:00-5:00 <b>SMART ENERGY SYSTEMS</b> Future renewable-energy-based smart grids, <i>Eduardo Prieto Araujo (UPC)</i> Interaction between smart grid and other energy vectors, <i>Ettore Francesco Bompard or Gianfranco Chicco (POLITO)</i> 5:00-5:30 Wrap-up and closure</p>



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