

10th INTERNATIONAL SEMINAR ON THERMODYNAMIC ENGINEERING OF FLUIDS
Tarragona (Spain), July 22nd-23rd, 2021



Organized by
Universitat Rovira i Virgili

In collaboration with
 Universidad de Valladolid and Universidad de Santiago de Compostela

PROGRAM

Thursday, July 22nd 2021

Welcome and Opening

10:00 Alberto Coronas, Coordinator of the Doctoral Program in Thermodynamic Engineering of Fluids at the Universitat Rovira i Virgili

Session 1: Properties and Applications of Fluids

10:10 **Understanding the thermodynamics of Deep Eutectic Solvents from a Computational Perspective**
 Felix Llovell (Universitat Rovira i Virgili)

10:40 **Using Bio-Based Solvents as CO₂ absorbents in refrigeration processes**
 Yohann Coulier (Université Clermont Auvergne)

11:10 **Quantitative Analysis of the solvation in H₂O/(LiBr+[dmim][Cl]) mixtures at 25 °C and its effect in the solubility**
 David Latorre Arca (Universitat Rovira i Virgili)

11:30 **Orchestra Scientific: a CO₂ capture system at atmospheric conditions with membranes and swing adsorption**
 Álvaro Reyes (Orchestra Scientifica)

12:00 **Coffee Break**

Session 2: Presentation of the research project progress of PhD researchers (I)

12:15 **Design and energy management of a Microgrid in a rural hotel complex**
 Teodor Pulido (Universitat Rovira i Virgili)

12:35 **Synergistic Effects of Nanoparticles and Ionic Liquids as Hybrid Lubricant Additives for Energy System Applications**
 Khodor I. Nasser (Universidade de Santiago de Compostela)

12:55 **Experimental determination of faults effects for variable-speed heat pumps**
 Ivan Bellanco (Universitat Rovira I Virgili)

13:15 **Feasibility study on fractionation of biomass to high value products using supercritical water hydrolysis**
 Vesna Leontijević (Universidad de Valladolid)

13:35 **Advances in solar stills and evaporators for brine and agro-industrial liquid wastes**
 Joel Nadal Bach (Universitat Rovira i Virgili)

14:00 **Lunch**

Session 3: Presentation of the research project progress of PhD researchers (II)

15:00 **Design and characterization of functionalized nanoparticle-based lubricants**
 Fátima Mariño (Universidade de Santiago de Compostela)

15:20 **Optimization of Hydrothermal CO₂ Reduction for developing an integrated CCU process**
 Maira Ivette Chinchilla Dueñas (Universidad de Valladolid)

15:40 **Energy recovery of plastic waste to produce biofuels by pyrolysis**
 Paul Palmay (Universitat Rovira i Virgili)

16:00 **Activating the metal-water-splitting for hydrogen generation in a semi-continuous fashion**
 Juan del Rio (Universidad de Valladolid)

16:20 **Hydrogen-rich syngas production from biomass and their integration in energy systems**
 Jimmy Barcos (Universitat Rovira I Virgili)

16:40 **Theoretical and experimental investigation on sorption processes with water/LiBr mixtures in advanced heat and mass exchangers for absorption heat pumps: Introduction and objectives.**
 Hussain Ahmed Tariq (URV)

17:00 **Co-simulation for the development of an energy management tool for hybrid vehicles**
 Pedro Maroto (Universitat Rovira i Virgili)

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Session 4: Hydrogen Storage with Organic and Ionic Liquids, and Applications

10:00	The role of hydrogen in integrated energy systems Antonio Atienza (Universitat Rovira i Virgili)
10:30	Ionic liquids in Hydrogen storage Luis Miguel Varela, Universidade de Santiago de Compostela
11:00	Almacenamiento a gran escala de hidrógeno en cavidades subterráneas como apoyo en la gestión de redes eléctricas con alta penetración de energías renovables Jesús Simón (Fundación para el Desarrollo de las Nuevas Tecnologías del Hidrógeno en Aragón)
11:30	Thermodynamic characterization of H₂-enriched natural gas within the Power-to-Gas framework David Vega (Universidad de Valladolid)

12:00 **Coffee Break**

Session 5: Presentation of the research project progress of master students

12:20	Water/LiBr absorption heat pump driven by district heating network for space cooling and heating applications Muhammad Faiq Vidi Wardhana (Universitat Rovira i Virgili)
12:40	Techno-economic evaluation of a small-scale photovoltaic-powered reverse osmosis desalination plant for potable water and salt production in Madura Island Habibie Muhammad Ega (Universitat Rovira i Virgili)
13:00	Performance analysis of ammonia-based compression heat pumps for simultaneous heating and cooling applications in milk pasteurization processes Reza Hargiyanto (Universitat Rovira i Virgili)
13:20	Modeling and Performance Analysis of Photovoltaic-Thermal (PVT) Powered Small-Scale Hybrid Desalination System: Reverse Osmosis and Membrane Distillation System (RO-MD System) Alwi Ahmad Al Muhdar (Universitat Rovira i Virgili)

13:40 **Closure**