



15th International Seminar on Thermodynamic Engineering of Fluids (15ISTEF)

July 22nd – 23rd, 2026. Tarragona (Spain)

Presentation

The International Seminar on Thermodynamic Engineering of Fluids is an annual academic-scientific meeting that brings together a group of international specialists who deal with various topics of interest in Engineering Thermodynamics. In addition to the seminar program, researchers of the PhD Program on Thermodynamic Engineering of Fluids will present and discuss their research works.

Preliminary program

Wednesday 22 nd July	
	Session 1. Doctoral Programme of Thermodynamic Engineering of Fluids
9:00	Welcome and annual summary of activities of the Interuniversity Doctoral Programme of Thermodynamic Engineering of Fluids. Coordinators at the Universidad de Valladolid, Universidade de Santiago de Compostela, Universidad de Burgos and Universitat Rovira i Virgili
	Session 2. (Chairperson: Adriana Coca)
9:15	High-temperature heat pumps for industrial applications: an economic analysis in different european contexts <i>Michel Noussan (Politecnico di Torino, Italy)</i>
9:45	Hot-gas defrost system with waste heat recovery: from the laboratory to the market <i>Daniel Arturo Leal Chávez (CIMAV, Mexico)</i>
10:15	Selection of lubricant bases through their thermophysical properties. <i>Josefa Fernández (Universidade de Santiago de Compostela, Spain)</i>
10:45	Coffee break
	Session 3. (Chairperson: Mahmoud Bourouis)
11:15	Estimating the composition of the ammonia-ethylammonium nitrate mixture by near-infrared spectroscopy and partial least squares regression. <i>David Latorre-Arca (CNAM, France)</i>
11:45	Applications of Phase Change Materials in Buildings: Passive, Active, and Hybrid Systems <i>Abdelkader Laafer (University of Blida 1, Algeria)</i>
12:15	Photovoltaic-thermal panels for optimal integration with underground ATEs systems – USES4HEAT project <i>Raquel Simón (ENDEF, Spain)</i>
13:00	Lunch break
	Session 4. (Chairperson: Daniel Salavera)
14:00	H2HP- synergies between hydrogen and heat pump technology using metal hydrides <i>Inga Buerger (German Aerospace Center-DLR, Germany)</i>
14:30	Dynamic simulation of 35 MP and 70 MP hydrogen vehicle refueling based on the SAE J2601 protocol <i>Sergio Sánchez Gómez (Universitat Rovira i Virgili, Spain)</i>
15:00	Flexibility analysis of multi-energy district networks <i>Jaume Fitó (Université Savoie Mont Blanc, France)</i>
15:30	Heat transfer modelling for liquid piston integrated with a gas cooler to reach near isothermal compression of CO ₂ for refrigeration systems <i>Hussain A. Tariq (Universitat Rovira i Virgili, Spain)</i>
16:00	Closing



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	Session 5 (Chairpersons: Joan Carles Bruno)
9:00	Thermodynamic Analysis of Refrigerants for Single-Stage Hydrogen Pre-Cooling Systems. <i>Mushayyed Muhammad Ali Khan (Universitat Rovira i Virgili, Spain)</i>
9:15	Thermodynamic digital twin framework for centralized cooling system. <i>Ahmad Fadel Mahmoud Sha'Ar (Universitat Rovira i Virgili, Spain)</i>
9:30	Design, Numerical Development, and Investigation on Techno-economical Performance Assessment of Hydrogen Storage Technologies for Refuelling Station(HRSs). <i>Tegen Dagnew Tessema (Universitat Rovira i Virgili, Spain)</i>
9:45	<i>Study of integration of a heat pump into a very low temperature district heating and cooling</i> <i>Francesca T. Malchiodi (Politecnico di Torino, Italy)</i>
	Session 6 (Chairpersons: Daniel Salavera)
10:00	Thermophysical and Tribological Properties of PAO4 + Adipate, Sebacate and Trimellitate Esters. <i>Mohamed A. Atlamsani (Universidade de Santiago de Compostela, Spain)</i>
10:15	<i>Enabling the scale-up of hydrothermal CO₂ reduction through ion-exchange recovery of formate</i> <i>Godwin Aturagaba. (Universidad de Valladolid, Spain)</i>
10:30	Coffee Break
11:00	Experimental study and molecular modeling of thermophysical properties for the binary systems containing glycol ethers + alcohol <i>Khaoula Samadi (Universidad de Burgos, Spain)</i>
11:15	Nitrogen oxides (NOx) capture: a novel pathway for the sustainable production of nitrogen-based compounds. <i>Manuela Castro Ferro (Universidad de Valladolid, Spain)</i>
	Session 7 (Chairpersons: Adriana Coca)
11:30	Conceptual Framework of a Coupled Energy–Thermal System for Solar-Powered Cold Storage with PCM Integration <i>Alwi Ahmad Al Muhdar (Universitat Rovira i Virgili, Spain)</i>
11:45	Energy performance of two photovoltaic-thermal collectors prototypes for off-grid drying agro-industrial applications. <i>Mario Nájera-Trejo (Universitat Rovira i Virgili, Spain)</i>
12:00	Aspen Plus and ANN Modeling of Biomass Gasification for Sustainable Hydrogen Production. <i>Ali Ghaemian (Universitat Rovira i Virgili, Spain)</i>
12:15	<i>Experimental process for sorption of Hydrogen in metal alloys</i> <i>Abdurahman Hasan Assagaf (Universitat Rovira i Virgili, Spain)</i>
12:30	Lunch
	Session 8. (Chairman: Mahmoud Bourouis)
14:00	Review and assessment of modelling approaches for Metal Hydride Cooling Systems <i>Zakaria Agantar (Universitat Rovira i Virgili, Spain)</i>
14:15	Evaluation of different neural networks for the thermodynamic prediction of metal hydride alloys <i>Gerardo Manríquez Pardo (Universidad Autónoma del Estado de Morelos, México)</i>
14:30	Development of a COMSOL Based Model for Hydrogen Absorption and Desorption in a Coupled Metal Hydride Reactor <i>Wassem Abbas (Universitat Rovira i Virgili, Spain)</i>
14:45	Circular thermochemical valorization of biomass–plastic waste blends via mild co-pyrolysis and steam reforming over Ni and Pd catalysts for green hydrogen production. <i>Caterine Isabel Donoso (Universitat Rovira i Virgili, Spain)</i>
15:00	Closing

Universitat Rovira i Virgili ·

Campus Sescelades
Av. Països Catalans, 26
43003 Tarragona (Spain)

Contact: Daniel Salavera, daniel.salavera@urv.cat Tel.: +34 977 558 613
Joan Carles Bruno, juancarlos.bruno@urv.cat Tel.: +34 977 559 665

Publications

A Book of Abstracts will be edited and distributed among the participants

Location and modality

Aula Seminari 111, Campus Sescelades, Avda. Països Catalans, 26, 43007, Tarragona
The seminar can be followed in person or virtually by videoconference (MS Teams):

- [Link for the Virtual Room on Wednesday 22nd](#)
- [Link for the Virtual Room on Thursday 23rd](#)

