

On-site training for industries

Molten Salt Systems CSP plants

Location: ENEA – Research Center Casaccia - 301, Via Anguillarese – 00123 Rome, Italy

Date: *November 7th – 11th, 2022.*

Target group: The course designed for engineers, researchers and representatives from European CSP industry and companies who want to be trained on real CSP hardware

Course Language: English

Trainers: Scientists and Specialists from ENEA

Objective: **The course focuses on the design and management methodologies for molten salt CSP systems that use linear solar collectors.** The training consists of both theoretical and practical modules. It will include visits, procedures, standards and best practices theoretical and experimental ‘hands-on’ experiences, Knowledge-Transfer and Networking and cover the following topics:

- **Molten salts as heat transfer fluids and heat storage media**
- **CSP plants with molten salts as heat transfer fluid & heat storage medium**
- **Molten salt processes**
- **Technologies for CSP molten salt plants**
- **Practical test cases**

Application: The **registration deadline is OCTOBER 15th, 2022.** Class size is limited to 15 participants. Eligible candidates will be informed until OCTOBER 30th, 2022. Standard health and safety measures defined by ENEA for visitors and meetings will apply (details to be given prior to the meeting depending on latest development of the covid-19 pandemic). These will include national ID card or passport, social distance, facemask during the lesson is strongly recommended as disinfection of hands.

Fees: No course fee is applicable. Accommodation and travel costs shall be covered by the participant. Lunch is offered by ENEA.

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Participation: To apply, please fill out the application form found on SFERA III website ([here](#)) and send it to: anja.kruschinski@dlr.de

For more information, visit [SFERA-3 website](#).

Agenda of course

Monday November 7th

Welcome

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| Welcome at CR ENEA Casaccia | 11:30 – 12:30 |
| Lunch | 12:30 – 13:30 |
| Visit ENEA Facilities (Test Component Lab, Chemical Lab, receiver tube test lab) | 13:30 – 15:00 |

Tuesday November 8th

Molten salts as heat transfer fluids and heat storage media

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| Chemical and physical characteristic of different MS mixtures (Salvatore Sau / Anna Tizzoni) | 09:30 – 10:15 |
| Predictive tools for molten salts mixtures (Salvatore Sau / Anna Tizzoni) | 10:15 – 10:45 |
| Coffee break | 10:45 – 11:15 |
| Corrosion aspect and materials compatibility in molten salt plants (Elisabetta Veca) | 11:15 – 12:00 |
| Lunch | 12:00– 13:15 |
| Instrumentation for molten salt plants (Walter Gaggioli / Giuseppe Petroni) | 13:15 - 14:15 |
| Operation experience with the DLR Test facility for thermal energy storage in molten salts – TESIS – (Stefan Glumm) | 14:15 – 15:00 |
| Design of molten salt TES Systems - Basic concepts for TES sizing and integration in CSP plants (Raffaele Liberatore) | 15:00-15:45 |

Wednesday November 9th

CSP plants with molten salts as HTF & HSM

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| Electric trace systems for molten salt circuits (Walter Gaggioli / Valeria Russo / Giuseppe Petroni) | 09:30 – 10:15 |
| Lessons learned from operation of MS TES Systems (Giuseppe Canneto / Valeria Russo) | 10:15 – 11:00 |
| Coffee break | 11:00 – 11:15 |
| Lessons learned from the commissioning/management of CSP molten salts plants operations (Walter Gaggioli / Valeria Russo / Giuseppe Petroni) | 11:15 – 12:30 |
| Lunch | 12:30 – 13:15 |
| Characterization of receiver tubes and experimental testing of MS cooling/freezing in receiver (Valeria Russo / Walter Gaggioli) | 13:15 – 14:15 |
| Molten salt ENEA CSP plant: M&O (start up and shut down MS plant visit PCS (ENEA molten salt Parabolic solar collector Facility) | 14:15 – 15:45 |

Social dinner at Massimo restaurant offered by ENEA

Thursday November 10th

Molten salt processes

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| Molten salts as HTF for chemical reactors (Luca Turchetti) | 09:30 – 10:15 |
| Use of molten salts in biomass gasification processes (Raffaele Liberatore) | 10:15 – 10:45 |
| Coffee break | 10:45 – 11:15 |
| Molten Salt CSP plants and photovoltaic plants: examples of technological hybridization (Valeria Russo) | 11:15 – 12:00 |
| Lunch | 12:00 – 13:15 |
| CSP Plant Simulation & CSP performance model (Valeria Russo) | 13:15 - 14:00 |
| MOSE facility: visit to Facility | 14:00 – 15:15 |

Friday November 11th

Technologies for CSP molten salt plants

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| Coating for molten salt receiver tube (Salvatore Esposito / Gabriella Rossi) | 09:30 – 10:30 |
| Low maintenance reflective surfaces for CSP plant (Anna Castaldo) | 10:30 – 11:30 |
| Free discussion “suggestions, questions, etc.”. | 11:30 - 12:00 |

For each session will be scheduled 10 minutes for questions, reflections, thoughts and insights on specific topics

Place of the event:
 ENEA Casaccia Research Centre
 Via Anguillarese 301, 00123, S.Maria di Galeria (Roma)
 Location: Scuola delle Energie

