



Deutsches Zentrum
für Luft- und Raumfahrt
German Aerospace Center



SFERA III

Free training course for CSP professionals on Optimization of CST plant output by optical and thermal characterization and target-oriented O&M

Announcement and call for applications

- Location:** Plataforma Solar de Almería (PSA), 04200 Tabernas, Spain
- Date:** 25th – 29th April 2022
- Target group:** Engineers, researchers and representatives from European CSP industry and companies who want to be trained on real CSP/CST hardware
- Course Language:** English
- Trainers:** Scientists and Specialists from DLR and CIEMAT
- Objective:** The course will include theoretical and practical modules covering the following topics:
- **Airborne qualification:** optical and thermal measurement and characterization of parabolic trough collectors with the use of UAV (drones). Techno-economic assessment of the improvements from these qualification methods.
 - **Meteorology:** solar resource measurement and nowcasting. Mirror soiling measurement, cleaning optimization, techno-economic evaluation.
 - **Component aging:** measurement and accelerated aging of main CSP components.
 - **Testing, Research & Innovation infrastructure:** get an overview of the testing, measurement and development capabilities of the international research centers, mainly CIEMAT's "Plataforma Solar de Almería".
 - **Knowledge-Transfer and Networking:** share information and experience not only between trainers and participants, but also between international industrial participants.
- Application:** The **registration deadline is January 31st 2022** on a first come, first serve basis. Class size is limited to 15 participants. Eligible candidates will be informed until February 15th, 2022. The maximum number of participants per company is two. Standard health and safety measures defined by DLR and CIEMAT 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 vaccination, recovery or test certificate, social distance, face mask and disinfection of hands and surfaces.
- Fees:** No course fee is applicable. Accommodation and travel costs shall be covered by the participant. Lunch is offered at the PSA visitors center for an average price of 9,90 €. The transport to the PSA is free.
- Contact:** For further information about the course, please contact:
Daniel Benitez (DLR), Tel.: + 49 220 36014161, email: daniel.benitez@dlr.de
Anja Kruschinski (DLR), Tel.: +49 22036014230, email: anja.kruschinski@dlr.de
- Participation:** To apply, please fill out the **application form** found under [this SFERA-III event page](#) and send it to: anja.kruschinski@dlr.de



Deutsches Zentrum
für Luft- und Raumfahrt
German Aerospace Center



Draft Course Program

Monday, 25/04/22		
○ Welcome tapas in Almeria with participants and trainers (20.30h)		all
Tuesday, 26/04/22		
○ Welcome at the Plataforma Solar de Almería		CIEMAT
○ SFERA-3 project introduction and course overview		DLR
○ Visit of the facilities at the Plataforma Solar de Almería		CIEMAT, DLR
Lunch		
○ Visit of the facilities at the Plataforma Solar de Almería		CIEMAT, DLR
Wednesday, 27/04/22		
○ Optical quality and measurement techniques		DLR
○ Collector efficiency and yield analysis based on airborne measurement		DLR
Lunch		
○ Thermal measurement techniques		DLR
○ Airborne Infrared measurement		DLR
○ Clamp-On Measurements and Evaluation by Dynamic Performance Model		DLR
Thursday, 28/04/22		
○ Solar resource measurement and nowcasting		DLR
○ Mirror soiling measurement and cleaning techno-economic optimization		DLR
Lunch		
○ Use of nowcasting system to optimize the yield in parabolic trough plants		DLR
○ Component aging measurement, lab-testing		DLR
Friday, 29/04/22		
○ Heliostat Calibration and flux density measurement		CIEMAT + DLR
○ Compilation of training results		all
○ Experience sharing industrial focus		Participants
○ Feedback, Certificate, Closing and Farewell (~13h)		all