On-site training for industries

Testing the durability of solar materials and systems

Location:	**CEA-INES** Commissariat à l'énergie atomique et aux énergies alternatives, 50 avenue du lac Léman, 73375 Le Bourget-du-Lac, **FRANCE**
Date:	***8th –10th June 2022***
Target group:	The course is designed for engineers, researchers and representatives from European CSP industry and companies
Course Language:	English
Trainers:	Scientists and Specialists from CEA & DLR
Objective:	This course focuses on testing the durability of solar materials and systems. The training consists of both theoretical and practical modules. The training will include visits, procedures, standards and best practices theoretical and experimental 'hands-on' experiences, Knowledge-Transfer and Networking and cover the following topics: • **Indoor laboratory and outdoor aging facilities** • **Accelerated ageing** of components and systems subjected to high solar flux, thermal, humidity and corrosive environments • **Optical and mechanical characterizations** • **Accelerated aging test modeling durability method** • Practical test cases
Application:	The **registration deadline is April 15th, 2022**. Eligible candidates will be informed until April 30th, 2022. Standard health and safety measures defined by CEA 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, vaccine pass, 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 by CEA.
Contact:	Estelle Le Baron (CEA), Tel.: +33 479 792 019, e-mail: estelle.lebaron@cea.fr Anja Kruschinski (DLR), Tel.: +49 22036014230, email: anja.kruschinski@dlr.de
Participation:	To apply, please fill out the application form here found on SFERA III website (here) and send it to: anja.kruschinski@dlr.de

The EU-funded research project - SFERA III - aims to boost scientific collaboration among the leading European research institutions in solar concentrating systems, offering European research and industry access to the best research and test infrastructures and creating a virtual European laboratory. Grant agreement 823802, funded under H2020-INFRAIA-2018-1.

Agenda

Wednesday, June 8, 2022

09:00 - 09:15	**Arrival-Registration and delivery of documentation**	**CEA**	**15 min**
09:15 – 09:30	**Introduction and Goals**	**CEA**	**15 min**
09:30 – 9:45	**Generality on durability method studies**	**CEA**	**15 min**
9:45 – 11:45	**Visit and discussion on CEA INDOOR/OUTDOOR facilities and Optical laboratory**	**CEA**	**120 min**
11:45 – 12:00	**- Coffee break -**		**15 min**
12:00– 13:00	**Example CEA INDOOR and OUTDOOR aging tests**	**CEA**	**60 min**
13:00 – 14:00	**- Lunch break -**		**60 min**
14:00 –14:30	**Standardized tests for reflectors**	**DLR**	**30 min**
14:30 -15:00	**Advanced tests for reflectors**	**CEA**	**30 min**
15:00 –15:30	**Erosion of reflectors and sandstorm simulation**	**DLR**	**30 min**
15:30 -16:00	**Characterization and accelerated aging of parabolic trough receiver materials**	**DLR**	**30 min**
16:00– 16:30	**Characterization and accelerated aging of solar absorber materials**	**DLR**	**30 min**
16:30 –17:00	**Sample and data management**	**CEA**	**30 min**
17:00	**End of meeting**		

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Thursday, June 9, 2022

09:00 - 09:15	**Arrival- welcome coffee**	**CEA**	**15 min**
09:15 – 9:45	**Overview of CEA studies on accelerated ageing and soiling of solar materials**	**CEA**	**30 min**
09:45 – 10:15	**Automatic corrosion detection system for solar reflectors**	**DLR**	**30 min**
10:15 – 10:30	**- Coffee break -**		**15 min**
10:30 – 12:30	**'hands-on' experience on laboratory and portable characterization tools**	**CEA/DLR**	**120 min**
12:30 – 13:30	**- Lunch break -**		**60 min**
13:30 – 14:00	**Modelling of accelerated stress factors**	**CEA**	**30 min**
14:00 – 14:15	**Environmental analyzes: measurement of stress factors, weather, data processing, statistical analyses**	**CEA**	**15 min**
14:15 – 14:45	**Acceleration factor calculation/sites selection**	**CEA**	**30 min**
14:45 – 15:15	**Lifetime extrapolation**	**CEA**	**30 min**
15:15 – 15:45	**Lifetime extrapolation of reflectors (erosion and corrosion)**	**DLR**	**30 min**
15:45 – 16:45	**Discussion**	**All**	**60 min**
16:45	**End of meeting**		

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Friday, June 10, 2022

09:00 - 09:15	**Arrival- welcome coffee**		**15 min**
9:15 – 10:15	**Coupling stress factors and correlations indoor/outdoor durability studies**	**CEA**	**60 min**
10:15 – 11:15	**Testing the durability and performance of solar systems**	**CEA**	**60 min**
11:15 – 11:30	**- Coffee break -**		**15 min**
11:30 –12:15	**DLR Optical characterization tools**	**DLR**	**45 min**
12:15 –13:15	**CEA Optical and mechanical characterization tools**	**CEA**	**60 min**
13:15 – 14:45	**- Lunch break -**		**90 min**
14:45 – 15:45	**Experience sharing industrial focus and Feedback**	**All**	**60 min**
15:45	**End of meeting**		

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