

# Short-term Training for technical staff and scientists

## Durability of reflectors and receivers

**Location:** CEA-INES Commissariat à l'énergie atomique et aux énergies alternatives, 50 avenue du lac Léman, 73375 Le Bourget-du-Lac, **FRANCE**

**Date:** **22<sup>th</sup> –23<sup>th</sup> November 2022 mixt on line and in person**

**Target group:** The training is designed for engineers, researchers and technical staff of the partners involved in the project to enable them to make optimum use of CEA optical facilities through short-term training visit.

**Course Language:** English

**Trainers:** Scientists and Specialists from CEA

**Objective:** This course focuses on accelerated ageing under controlled conditions of reflectors and receivers. The training consists of both theoretical and practical modules.

**Trainers:** Scientists and Specialists from CEA

The training will includes visits, procedures, standards and best practices theoretical and experimental 'hands-on' experience, Knowledge-Transfer and Networking and cover the following topics:

- Indoor laboratory and outdoor aging facilities
- Accelerated ageing of material subjected to high solar flux, thermal, humidity and corrosive environments
- Optical and mechanical characterizations before and after aging
- Durability modeling method and Lifetime extrapolation
- Practical test cases

**Application:** The **registration deadline is September 30<sup>th</sup>, 2022**. Eligible candidates will be informed until October 15<sup>th</sup>, 2022.

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

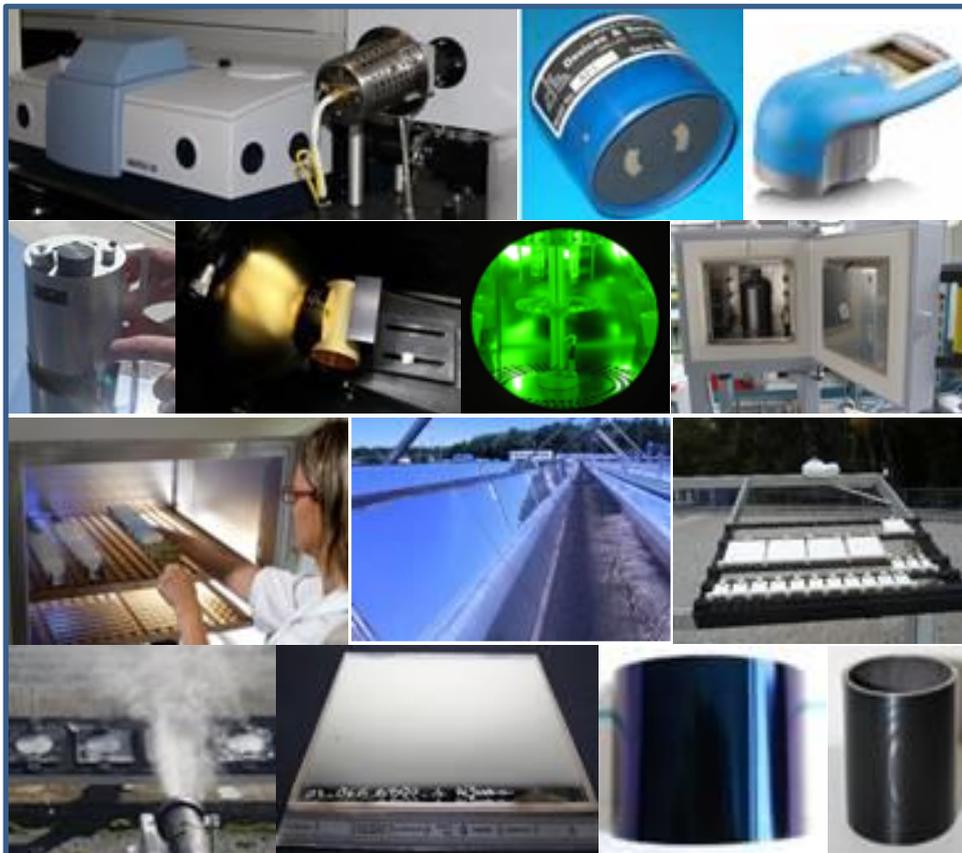
**Contact:** Estelle Le Baron (CEA), Tel.: +33 479 792 019 ,E-mail: [estelle.lebaron@cea.fr](mailto:estelle.lebaron@cea.fr)

**Participation:** To apply, please fill out the application form [here](#) found on SFERA III website ([here](#)) and send it to: [estelle.lebaron@cea.fr](mailto:estelle.lebaron@cea.fr)

## About the Lab & Test Field

The CEA durability laboratory is equipped with instruments for aging and characterization of CSP-PV and Solar fuels relevant materials. This training is dedicated to :

- Optical Characterization of Materials : Absorbance & emittance at ambience temperature and high temperature. Spectral emittance in temperature up to 1000°C. Emittance at 80°C. Optical microscopy observation. Hemispherical reflectance & Transmittance , specular reflectance, directional reflectance. Colorimetric of paints. FTIR ATR spectra. Camera based and image treatment of soiling and corrosion.
- Optical Characterization of Systems : Reflector optical qualification, performance evaluation, flux mapping, tracking accuracy evaluation.
- Accelerated Ageing : A unique ensemble of equipment: High temperature furnaces, Damp Heat, NSS, UV test Chambers, high solar flux, High Accelerated Stress Test (HAST) Chamber. Outdoor concentrated tests and outdoor exposure of solar mirrors.
- Outdoor exposure of solar mirrors and testing of soiling and flat collectors.





## Agenda

### First day

09:00 - 09:15	Arrival- welcome coffee	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 outdoor and indoor facilities and Optical laboratory	CEA	120 min
11:45 – 12:00	- Coffee break -		15 min
12:00– 13:00	Indoor and outdoor aging tests	CEA	60 min
13:00 – 14:00	- Lunch break -		60 min
14:00 – 16:00	'hands-on' experience on laboratory practice and portable characterization tools	CEA	120 min
16:00 –17:00	Overview of studies on accelerated ageing and soiling of solar materials	CEA	60 min
17:00	End of meeting		
19:30 – 21:30	Dinner at Chambéry Discussion & wrap up of first day	Guests and Trainers	120 min



## Second day

<b>09:00 - 09:15</b>	<b>Arrival- welcome coffee</b>	<b>CEA</b>	<b>15 min</b>
<b>09:15 – 9:45</b>	<b>Durability modeling method and Lifetime extrapolation</b>	<b>CEA</b>	<b>30 min</b>
<b>9:45 - 10:45</b>	<b>Coupling stress factors and conclusion on lifetime prediction and durability studies</b>	<b>CEA</b>	<b>60 min</b>
<b>10:45 – 11:00</b>	<b>- Coffee break -</b>		<b>15 min</b>
<b>11:00 – 11:30</b>	<b>Sample and data management</b>	<b>CEA</b>	<b>60 min</b>
<b>11:30 – 12:30</b>	<b>Environmental analyzes: measurement of stress factors, weather, data processing</b>	<b>CEA</b>	<b>60 min</b>
<b>12:30 – 13:30</b>	<b>- Lunch break -</b>		<b>60 min</b>
<b>13:30 – 15:30</b>	<b>CEA-INES Visit</b>	<b>CEA</b>	<b>120 min</b>
<b>14:30 – 15:30</b>	<b>CEA Optical and mechanical characterization tools</b>	<b>CEA</b>	<b>60 min</b>
<b>15:30 – 16:30</b>	<b>Experience sharing industrial focus and Feedback</b>	<b>All</b>	<b>60 min</b>
<b>16:30</b>	<b>End of meeting</b>		



## **MEETING PLACE & ACCOMMODATION**

<b>Training place</b>	<b>CEA-INES</b>
<b>Address Training Location:</b>	<b>50 avenue du lac Léman, 73375 Le Bourget-du-Lac, FRANCE</b>
<b>How to get to the Training place from the airport</b>	<b>Airport Shuttle from Lyon or Geneva ,Taxi</b>
<b>Restaurant place</b>	<b>On site</b>
<b>Accommodation</b>	<b>Hotel close to CEA-INES. Hotel contacts and special rates will be provided to participants.</b>
<b>Contacts for the Training</b>	<b>Estelle Le Baron</b> <a href="mailto:estelle.lebaron@cea.fr">estelle.lebaron@cea.fr</a>
<b>Participation confirmation for the Training</b>	<b>SFERA III website: <a href="https://sfera3.sollab.eu/dissemination/">https://sfera3.sollab.eu/dissemination/</a></b>