

DR. Bendjebbas Hichem



Biography

Mechanical engineer from 1996 (University of Blida), obtained master degree in Mechanical construction from the University of Science and Technology Houari Boumediene (USTHB 2012), Algiers, Algeria. He has a PhD in Numerical Mechanics from the University of Médéa in 2016. He is currently researcher (MRA) at Development Unit of Solar Equipment since 2005, UDES/CDER, Bou-Ismaïl, Tipaza, Algeria. His research is focused in low and medium temperature solar thermal energy. His first area of expertise in the EAH team is concentrating solar power systems. He is as well working on advanced mechanical systems especially the numerical simulation and mathematical modeling in partnership with the LMP2M laboratory of the University of Médéa since 2013.

PLENARY TITLE

“Recent advances in thermal energy storage materials for concentrating solar power systems”

ABSTRACT

Energy storage plays a vital role in tackling the challenges of variable renewable energy generation and waste heat availability, as well as the mismatch between energy supply and demand in time and space.

Thermal energy storage (TES) will become one of the most promising technologies for energy storage at scale. TES technology based on thermal storage materials can effectively store solar thermal energy.

There is a need for CSP to increase the performance in all aspects like cost, efficiency, reliability etc. Although the overall efficiency of the CSP depends on the performance of all components like collectors, receivers, thermal energy storage system, heat exchangers, turbines and generators etc., but the performance of the TES system is the most crucial factor. Therefore, progress in the efficiency of the TES technologies and reduction in cost of electricity generation are the need of the hour.

The focus is currently on systems compensating transients caused by clouds and on systems for daily charging/discharging system. Seasonal storage is not considered to be cost-effective within the near future.