



Press Release

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Alexander von Humboldt Fellow as Visiting Scientist at Fraunhofer ISE

Dr. Hatem Bentaher Contributes his Expertise to Project on Cooling Food Using Solar Thermal Energy

Since July 2012, Dr. Hatem Bentaher is working at the Fraunhofer Institute for Solar Energy Systems ISE as an Alexander von Humboldt fellow. Born in Tunisia, he is serving as an advisor for the research project "AgroKühl", in which solar thermal collectors are used to power cold rooms for keeping food or medicine. Scientists at Fraunhofer ISE and Kramer GmbH, specialists in cold room construction, have already put a pilot system in operation in the town of Umkirch near Freiburg. The goal of this cooperative project is to develop an integrated turnkey system that, for example, can be installed in Bentaher's home country of Tunisia.

Cooled by the sun

The research project "AgroKühl" is carried out jointly by partners from industry and science. It is the goal to develop a solar driven cold room for cooling, for example, agricultural products or medicine. Such systems are particularly suited for use in Southern Europe or North Africa. In these locations, the sun shines not only often but also strongly and the cooling demand is high. With this abundant solar energy, the solar collectors generate sufficient energy to drive the cooling processor.

"At present, the energy required for industrial cooling applications is met by electric or fossil fuel-driven compression chillers. Using thermal solar energy can drastically reduce the need of non-renewable energy sources in cooling processes. As a result, the dependence on energy exports, for example, in countries bordering the Mediterranean, can be reduced,"

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says Dr. Hatem Bentaher. The German Aerospace Center (DLR) is the lead partner. Financial support is also provided by the German Federal Ministry for Education and Research (BMBF).

During his stay in Freiburg, Dr. Hatem Bentaher will be in charge of monitoring the measurement operation as well as the optimization and simulation of the pilot system. He also will be working on the layout for follow-up systems and will assist in searching for potential partners and other applications. "Dr. Hatem Bentaher has an excellent scientific background and many contacts to researchers and companies in his home country. At Fraunhofer ISE, we are very pleased to welcome him as an Alexander von Humboldt fellow," remarks Prof. Dr. Eicke R. Weber, Institute Director at Fraunhofer ISE.

First Pilot System in sunny Southern Germany

Especially important to the scientists at Europe's largest solar research institute is an integrated and sustainable analysis of cold storage. Considerations here include the energy generation, energy use and minimization of the losses during supply and storage. A small pilot system (12 kW) was already put into operation. The solar thermal collectors, in this case "Fresnel collectors" are provided by the company Industrial Solar GmbH, a supplier of high-quality solar process heat systems based in Freiburg.

Kramer GmbH is located in Umkirch near Freiburg. The company is a specialist for shopfitting, cold room construction and insulation technology. It serves customers throughout Europe. Kramer GmbH offered to implement their own cold storage into the pilot system and provide the necessary room, technical capacity as well as the hardware for the system. Matthias Weckesser CEO believes strongly on the realization of a market-ready turnkey system with ca. 120 kW cold power. The idea and the first concept for a solar driven cold room originates from Kramer GmbH, the engineering company Katholing Ruppert, the planners Nürnberger, and

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Kälte Grohmann GmbH & Co.KG. In addition to meeting the financial demands, all of the cooperative partners are providing the necessary personnel and respective technical expertise to achieve their mutual goal of constructing turnkey solar driven cold rooms.

Resume Dr. Hatem Bentaher

- 1972 born in Tunisia
- 1991-1997: National Engineering School of Sfax (ENIS), Tunisia; Mechanics, Diploma
- 1998-2001: National Engineering School of Tunis (ENIT), Tunisia; Applied Mechanics, Master's degree
- 2003-2009: National Engineering School of Sfax (ENIS-Tunisia) & IZFP, Universität des Saarlandes; Mechanical Design and Manufacturing, Ph.D.
- 1998-2010: Scientist at the Olive-Tree Institute of Sfax, Tunisia
- Since 2010: Assistant Professor at the Higher Institute of Industrial Systems Gabes, Tunisia
- Since 01.07.2012: Alexander von Humboldt-Stiftung Fellow

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Dr. Hatem Bentaher is an Alexander von Humboldt Fellow and guest scientist at the Fraunhofer ISE. ©FraunhoferISE



Solar thermal pilot plant in Umkirch near Freiburg, Germany. In the research project "AgroKühl", solar thermal energy is utilized to power cold rooms for food and medicines. ©Kramer GmbH

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