

PRESS RELEASE DECEMBER 6, 2011

Fraunhofer researchers receive the Franco-German Business Award 2011

Fraunhofer researchers have teamed up with their French colleagues at the Carnot-Institut Laboratoire d'électronique des technologies de l'information CEA-LETI to develop reusable substrates for III-V multi-junction solar cells – and on December 5, 2011, were presented with the Franco German Business Award for their work.

The photovoltaics industry is booming – more and more solar modules are appearing on rooftops, and even large-scale solar power plants are increasingly feeding power into the grid. Multi-junction solar cells are particularly efficient in this regard: they can achieve efficiencies of up to 43 percent - twice the level of conventional solar cells made of crystalline silicon. The trick: they consist of several semi-conductor layers that combine to transform the entire spectrum of sunlight into electrical energy. This technology is used in concentrator photovoltaics. There, lenses focus the light of the sun 500 times onto tiny solar cells. These concentrator systems produce solar electricity on a large scale, particularly in solar power plants located in areas rich in sunlight. Among the producers of these plants is SOITEC Solar GmbH, in Freiburg, Germany, a former spinoff of the Fraunhofer Institute for Solar Energy Systems ISE.

The multi-junction solar cells themselves consist of some 30 semi-conductor layers built up, layer for layer, on ultra-pure crystals of germanium or gallium arsenide. These materials are very costly, however. In a joint Franco-German project, researchers at ISE in Freiburg and their colleagues from the Carnot-Institut Laboratoire d'électronique des technologies de l'information CEA-LETI in Grenoble, France, are working to develop new substrates for multi-junction solar cells. The new technology replaces the expensive materials with reusable substrates. Whereas up until now the solar cells had to remain in place atop the germanium or gallium arsenide crystals, the solar cells are now removable from the new substrate which is recycled several times. This way, the cost of producing solar cells can be reduced by up to 20 percent.

For further information: Karin Schneider | Phone +49 761 4588-5147 | karin.schneider@ise.fraunhofer.de
Fraunhofer Institute for Solar Energy Systems, Freiburg | www.ise.fraunhofer.de

Notes: Franz Miller, Janine van Ackeren | Fraunhofer-Gesellschaft, Munich
Press and Public Relations | Phone +49 89 1205-1333 | presse@zv.fraunhofer.de

„In the Solar-Bond project, two high-tech institutes have combined their skills,” according to Dr. Frank Dimroth, Head of Department III-V - Epitaxy and Solar Cells at Fraunhofer ISE. „CEA-LETI is a leader in the microelectronics field and Fraunhofer ISE in photovoltaics.” The French colleagues develop the substrate and adapt its properties to the requirements involved in growing multi-junction solar cells; the German scientists then apply the solar cells to these substrates and process them to create ready-to-use devices. The researchers are also working closely with SOITEC, a French company: in the future, the new solar cells will be used in their concentrator modules.

Press Release
December 6, 2011
Page 2

The scientists were honored for their international research on December 5, 2011, in Paris with the Franco-German Business Award 2011, presented by the Franco-German Chamber of Commerce and Industry AHK. The business award is presented in recognition of best practices over the past two years. Patrons of the award are the French Minister of Economy, Finance and Industry, François Baroin; and the German Federal Minister for Economics and Technology, Dr. Philipp Rösler.

SOLARBOND is one of 26 projects sponsored under the Inter Carnot Fraunhofer program (<http://www.programme.inter.carnot.fraunhofer.org>). The purpose of this program jointly run by the German Federal Ministry for Education and Research, Fraunhofer and The French National Research Agency is to establish strategic partnerships between French and German research and industrial organizations.