

Press Release

Masdar PV and Helmholtz-Zentrum Berlin partner to accelerate development of next generation thin film crystalline silicon PV technology

- HZB's first milestone achieved by succeeding in depositing a thin, crystalline 10µm layer of silicon on glass utilizing laser-crystallization
- Demonstration of a world record value for the open-circuit voltage of 582 mV for c-Si on glass by HZB researchers
- The next generation technology of thin film silicon on glass could enable better competition with existing crystalline PV producers

Ichtershausen, June 17, 2013 – MASDAR PV and HELMHOLTZ-ZENTRUM Berlin have strengthened their R&D partnership, focusing resources on development of next generation thin film Si technology. After successful cooperation in the development of Masdar PV's first and second generation thin film silicon based solar cells, Masdar and HZB/PVcomB are now moving ahead to accelerate deployment of a new generation of thin film crystalline silicon based PV.

HZB has achieved the first milestone on this technology roadmap by succeeding in depositing a thin, crystalline 10µm layer of silicon on glass utilizing laser-crystallization. "Thin film crystalline silicon based PV can achieve high efficiency with low material cost", explains Prof Bernd Rech. "Thus, it combines the advantages of incumbent, wafer-based crystalline silicon PV and thin film Si technology. Moreover, thin film crystalline silicon uses only abundantly available materials. We are confident to reach efficiencies comparable to wafer based crystalline silicon technology. On a long-term basis we are aiming for 20 % and beyond with thin film Si technology."

Recent developments at HZB on crystalline thin film Si solar cells have triggered the interest of MASDAR PV to invest in related R&D. HZB researchers demonstrated a world record value for the open-circuit voltage of 582 mV for c-Si on glass. This break-through result, the excellent material properties of thin film crystalline silicon created by Liquid Phase Crystallization as well as promising processability of the material initiated the shift in R&D focus now announced by Masdar PV and HZB / PVcomB.

"We expect that thin film crystalline silicon solar cells can achieve 14% efficiency cells in the short to mid-term", says Prof. Rutger Schlatmann, leader of the technology transfer unit PVcomB at the HZB, "and we are confident that rapid technological progress is possible in this field".

Masdar PV is aiming to transfer this technology into its existing production facilities and therefore deliver this new technology on modules up to full size (5.7m²).

“Investing in the R&D of this next generation technology of thin film silicon on glass to produce PV panels could enable us to better compete with existing crystalline PV producers who rely on economies of scale rather than significant technology improvements”, says Masdar PV’s MD Tushita Ranchan.

About Masdar PV GmbH

Masdar PV GmbH develops and produces innovative thin-film solar products and solutions. The company is a 100 % subsidiary of Masdar, Abu Dhabi’s multifaceted initiative for innovative renewable energy technologies, launched and owned by Mubadala Development Company.

The selection of module sizes that customers can choose from and the products’ advantageous cost-benefit ratio ensure that the high-tech modules from Masdar PV are ideally suited for ground-mounted installations and large-area rooftop systems. Transparent and colored modules allow architects to build futuristic, façade- and roof-integrated PV installations.

Please visit our website for additional information: www.masdarpv.com

About HZB

The Helmholtz Centre Berlin for Materials and Energy (HZB) was established from the research centers Hahn-Meitner Institute (HMI) and Berlin Electron Storage Ring Society for Synchrotron Radiation (BESSY). With research in the field of solar energy HZB scientists laid the foundation for solar cells and solar fuels to conquer the market with the next and after next generation. As co-founder of the Competence Centre photovoltaic (PVcomB) HZB promotes the technology and knowledge transfer in the industry. HZB is a member of the Helmholtz Association.

Please visit our website for additional information: <http://www.helmholtz-berlin.de>

About PVcomB

The mission of PVcomB, the Competence Centre Thin-Film- and Nanotechnology for Photovoltaics Berlin, is to support worldwide growth of thin-film photovoltaic technologies and products by providing top level technology transfer.

PVcomB – as part of the Helmholtz-Zentrum Berlin (HZB) and in close cooperation with the Technical University Berlin (TUB), the University of Applied Sciences Berlin (HTW) and industrial partners – combines competences in fundamental materials research and device development on the one hand, with industrial experience and technology on the other.

Please visit our website for additional information: <http://www.pvcomb.de>

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