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Black Silicon Solar Cells

Objective

The project is focused on the development of high efficiency and low cost silicon solar cells using nanostructured "Black silicon" (BS), which can be manufactured by adding a dense network of nanoscale needles on a standard silicon wafer. This makes the material much less reflective, allowing the solar cells to capture light at very small angles. The main goal is to find out whether the BS structures have potential to become competitive and effective for solar cells production.

Expected outcomes

- Getting the optimal kind of BS nanostructures on a silicon wafer
- Creation of a prototype which can be used as a solar cell in practice
- Measuring the IV-characteristics and the power conversion
- Testing of BS solar cells under "field conditions"

Company description

"Barva Innovation Center" Ltd. (www.barva.am) was established in 2005 and specializes in the design and manufacturing of different hi-tech products for various industries. The center has established contacts with local and foreign universities and producers. Any innovative process goes through the total product life cycle – from the development of the concept until the introduction on the market. Barva provides the following services: production and installation of hi-tech devices and equipment, such as systems for the suppression of hails, systems for rain stimulations; equipment for production synthesis including the transfer from biomass to gas, solar (photo-electric) cells.

Research Partner

Institute of Microelectronics / NCSR "Demokritos" (Athens, GREECE)
High End Engineering Photonic Labs (Riga, LATVIA, www.heephotonic.eu)

Company contact data

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