



**Materials and Devices for Future Energy Sources:  
From Nanoelectronics to Gigawatts (MDFES2007)  
Satellite Workshop @ NGC2007  
Phoenix, Arizona, March 13, 2007**



**Chairman: Slobodan Petrovic**

The **MDFES2007** workshop is being launched as part of Symposium and School on **Nano and Giga Challenges in Electronics and Photonics (NGC2007)**. The goal of this 1-day meeting is to explore the merging of nanotechnology and nanoelectronics with the energy field. There are several aspects that connect nanoelectronics and energy. First, nanoelectronic devices of the future will require the power that will be compatible with nanoelectronics fabrication technology and that will follow the trend of reducing size and weight while the performance improves. Inclusion of energy devices such as fuel cells in nanoscale electronics could provide a fully autonomous system capable of communicating with the outside world through information exchange and function effect only rather than through exchange of both power and information. At the same time, nanotechnology is one of the critical areas of science and technology that could provide benefits through both increased efficiency of the present energy related processes and by enabling new technologies based on renewable energy sources that were previously not possible, did not have practical efficiency or were not economically viable.

Papers are invited that discuss energy sources for future nanoelectronics; nanofabrication processes for energy devices, integration of energy devices with nanoelectronics; and nanomaterials for energy applications. Examples of energy devices built from nanostructured materials are solar cells, fuel cells, thermoelectrics, and ultracapacitors. The expectation is to attract a number of distinguished speakers who will cover practical, theoretical, and modeling aspects of energy nanoscience such as nanoelectronic fabrication and synthesis processes for energy devices, architecture of nanoscale energy systems, interfacial properties of energy carriers, energy conversion on a small scale, energy storage, biological energy harvesting, hydrogen production and catalytic nanomaterials.

The workshop will be held in Tempe, Arizona, March 13, 2007 as a satellite meeting of **NGC2007**. The **NGC2007** and **MDFES2007** will be hosted by Arizona State University in cooperation with Nano & Giga Solutions and local, national and international organizations, universities, research centers, companies and governmental agencies. **MDFES2007** invites academic and industrial researchers to present expository and original research papers on the science and advanced technology related to the merger of micro- and nanoelectronics and energy. The industry showcase will enable leading edge commercial and pre-commercial products from start-up, early-stage, and corporate projects to present their business cases, to exhibit, and to sponsor this conference.

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