

For Immediate Release



## **AUB international workshop on energy and natural resources highlights latest advances in sustainable energy research**

Beirut, Lebanon- 10/05/2012 -The latest advances in sustainable energy research were discussed at the Fourth Annual International Masri Institute Workshop on Energy and Natural Resources, held at the American University of Beirut on May 10, 2013.

Internationally-renowned scientists converged on AUB to highlight new research advances in: solar energy, including the development of organic solar cells; the cost-effective and environmentally friendly production of biogas from waste; energy efficiency; exploration and recovery of oil and gas; energy resources management; and policy formation, including proper legislation and needs-assessment development.

Organized under the umbrella of the Munib and Angela Masri Institute of Energy and Natural Resources at AUB, the workshop aimed to expand academic cooperation opportunities with fine institutions in the region such as King Abdallah University of Science and Technology and Masdar Institute of Science and Technology, noted Associate Provost Nesreen Ghaddar, who, along with the the Masri Institute steering committee, was one of the main drivers behind the workshop.

“The workshop hopes to pave the way for major advances and collaboration in energy research which will benefit the region and the world,” noted Provost Ahmad Dallal in his opening remarks, adding that the Masri Institute has evolved into a “tremendous asset for researchers in Lebanon and the region,” by supporting research and development and interdisciplinary initiatives that would lead to the “sustainable and responsible use, management, and conservation of energy and natural resources.”

Since it was established four years ago, the Masri Institute has funded about 20 promising research projects at AUB, involving over 40 faculty members and numerous graduate students.

Omar Masri, council member of the Masri Institute and managing director of Edgo group, the family’s London-based holding company which specializes in engineering and development, underscored the importance of sustainable energy research in his welcoming remarks. “When it comes to energy, the 21st century will undoubtedly be a century of transition,” Masri said. “ Now, more so than ever before, it has become essential to find innovative and clean solutions in the fields of energy, transport and CO2 emission control, to ensure a smooth transition to a low-carbon world.

The combination of changes that the industry now faces requires epic rather than incremental responses for the industry to evolve and prosper.”

In his keynote speech, Professor Jean Frechet, the vice president of research at King Abdullah University for Science and Technology (KAUST) and a world-renowned, award-winning polymer chemist with over 900 research papers and 51,000 citations, first overviewed the scientific expertise and facilities available at KAUST, which is supported by a multi-billion dollar endowment.

Then he highlighted important advances in solar energy research, noting that since the 1970s, the cost of solar cells has gone down from almost \$77 per watt produced to less than \$1 per watt. "This is very promising as we can finally say that solar cells can compete with fossil fuel energy," he said. However, researchers are still fine-tuning solar cell technology, as the performance and efficiency of cells are affected by temperature, humidity and dust. In a region known for its sandstorms, it was essential for researchers to find ways to keep the solar panels clean. The outcome: delving into research on robotic cleaning of solar cells. Another area of research that is considered exciting involves the development of organic solar cells, whose basic structure consists of a polymer and a molecule. When light is shined on the cells, the electrons interact to produce energy.

But researchers are still grappling with how to develop these thin organic solar cells in such a way so as to give them a long shelf-life, preventing them from degrading in the presence of sun and wind, while at the same time maximizing their efficiency.

"If you understand what is happening, then you can find a solution," said Frechet with his characteristic optimism." The field is evolving fast and we are very encouraged by the fact that these organic, simple cells that can be potentially cheap, are performing much better year after year."

One major advantage of these organic solar cells is that they will be easily disposed of once spent and will not pose an environmental threat, noted Frechet.

Another keynote speaker, Jens Ejbye Schmidt, professor in Biofuels at Masdar Institute for Science and Technology in Abu Dhabi and an internationally-known researcher in environmental biotechnology with over 160 scientific publications, shared the latest research work being conducted on producing energy from waste.

With a global population that has increased almost six-fold in one century and is expected to increase by another 50 percent to reach 9 billion people who produce lots of waste by 2050, it is only natural for researchers to consider how to make use of all this available waste, said Schmidt. What's more, oil resources are expected to be depleted within the next 40 years—100 years by the most conservative estimates.

Currently, studies in which organic waste (from slaughterhouses, fish processing breweries, medical industries and food processing) was mixed with animal manure have produced biogas that can be used as power for cooling and heating, or as fuel for transportation.

The handicap is that this biogas is still 10 times more expensive than natural gas and it cannot be produced from all types of waste, explained Schmidt. But once these obstacles are removed, the world will have an energy source that reduces waste and greenhouse gases.

Following the two keynote speeches, AUB professors shared their latest research on a number of topics, including maximizing oil production from oilfields; techniques for minimizing energy consumption of typical residential building in Lebanon; developing new solar cell technology; developing clean charcoal production; and determining the optimal areas for development in the Levant basin.

## ENDS

**PHOTO CAPTIONS:** Professor Jens Ejbye Schmidt; (L-R): Associate Provost Nesreen Ghaddar, Professor Jean Frechet, May Masri, Omar Masri (sister and brother), Faculty of Engineering and Architecture Dean Makram Suidan

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### **Note to Editors**

#### **About AUB**

Founded in 1866, the American University of Beirut bases its educational philosophy, standards, and practices on the American liberal arts model of higher education. A teaching-centered research university, AUB has more than 600 full-time faculty members and a student body of about 8,000 students. AUB currently offers more than 100 programs leading to the bachelor's, master's, MD, and PhD degrees. It provides medical education and training to students from throughout the region at its Medical Center that includes a full service 420-bed hospital.

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