

New Canadian solar photovoltaic research network established

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A new research network to advance Canada's standing in the development of solar photovoltaics will be based at McMaster University.

The Natural Sciences and Engineering Research Council of Canada (NSERC) announced \$5 million in funding today for the establishment of the NSERC Photovoltaic Innovation Network. The Network is comprised of 29 top scientists and engineers working in the field of advanced solar cell research at 13 universities across Canada. Eleven private sector companies are also part of the network.

The Network aims to raise the status of <u>solar photovoltaics</u> (PV) as a renewable energy option in Canada by accelerating research and development and commercializing the outcomes.

"In particular, the network will develop new intellectual property in PV for adoption by Canadian industry to supply strong domestic demand currently met by foreign companies," explained Rafael Kleiman, Scientific Director of the Network and a Professor of Engineering Physics at McMaster. "It will help <u>Canada</u> compete globally in this rapidly growing sector."

The Network anticipates training 88 research personnel over five years to provide highly skilled and creative employees for positions in industry and academia.



"Our government's investments in science and technology are creating jobs, stimulating the economy and improving Canadians' quality of life," noted the Honourable Tony Clement, Minister of Industry. "We are investing more in innovation than ever before in Canada's history. By supporting the research being done by these networks, we are building the economy of tomorrow and helping our universities blaze the way to greater long-term prosperity and innovation that will benefit Canadians for years to come."

The NSERC Photovoltaic Network is one of 11 research networks announced today, which will receive \$56 million in NSERC grants over five years.

Mo Elbestawi, vice-president, research & international affairs, said the establishment of the NSERC Photovoltaic Innovation Network at McMaster speaks volumes about the University's reputation and leadership in green, sustainable and renewable energy. "This new network epitomizes what we're about," he said. "We're building on our strengths to create a critical mass of expertise in energy research and, in turn, helping Canadian companies remain competitive."

PV cells convert light from the broad solar spectrum directly to electricity, with the energy conversion efficiency and cost (in \$/W) being the most important device metrics.

The proposed collaborative and multi-disciplinary research program has the specific objectives of increasing the device conversion efficiency and/or reducing the device cost to make large scale PV deployment more competitive against electricity generation from fossil fuels.

Four central research themes have been identified with promising new approaches:



- organic devices with inherently low costs of materials and manufacturing;
- inorganic devices which to date are the mostly widely deployed (the most common of which are silicon-based);
- hybrid organic/inorganic devices that have the potential to combine the lower costs of organic devices with the higher efficiencies of inorganic devices; and
- new PV devices and architectures which take advantage of the unique properties of nano-structured materials.

Transparent solar cells optimized for integration into house or building windows and socioeconomic factors related to adoption of PV technology will also be considered.

Provided by McMaster University

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