Midwest Optoelectronics, LLC

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Press Release

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April 12, 2005

Hannover, Germany -- Midwest Optoelectronics, LLC (MWOE), a technology company based in Toledo, Ohio, announced today its integrated photovoltaic electrolysis (IPE) panel for cost-effective generation of hydrogen from water using sunlight. The announcement was made in a featured presentation of Midwest Optoelectronics in the Hydrogen and Fuel Cells Group Exhibit at Hannover Fair 2005.

The IPE panels, model PVH1A, are based on MWOE's patent-pending technologies recently developed at MWOE and its academic partner, the University of Toledo (UT). These panels utilize amorphous silicon based semiconductor layers deposited on a glass superstrate to drive water electrolysis and produce hydrogen. The innovative integration of photovoltaics and electrolysis allows MWOE to product highly efficient IPE panels for low-cost and environmentally friendly production of hydrogen from water, without the need for fossil fuels and without undesirable emission of pollutant gasses.

At the hydrogen generation rate already demonstrated in these MWOE's IPE panels, one would be able to install, in a 11m by 11m area of his or her rooftop or backyard, IPE panels that can generate sufficient hydrogen to power a typical car for an average of 10,000 miles per year. MWOE intends to improve its solar-to-hydrogen efficiency so that only a 6m x 6m roof top would be required to power a car completely. "There is a tremendous market for these integrated photovoltaic electrolysis panels, particularly on the day when it becomes more economical to burn hydrogen than gasoline." said Dr. Xunming Deng, Chairman and Co-founder, Midwest Optoelectronics, and Professor of Physics at the University of Toledo. Dr. Deng leads UT's effort in amorphous silicon based photovoltaic research and photovoltaic hydrogen generation research.

MWOE is currently in the process of producing panels for a demonstration project, in which a fuel cell car will be powered solely by these IPE panels. In further improving its product performance and reducing the manufacturing cost, MWOE is currently seeking strategic partners to work together and build more demonstration systems, set up pilot production and develop market.

MWOE's efforts are supported and enhanced by several research and development grants from the U.S. government. A $2.9-million grant from US Department of Energy's Hydrogen Production Program, awarded to Midwest Optoelectronics on Oct. 13, 2004 by then Secretary of Energy Spencer Abraham, helps to expedite MWOE's development process. Another $325,000 grant, recently awarded to MWOE from DOE through EMTEC, Inc, is used to develop manufacturing process for these IPE panels. In addition, MWOE received several other R&D grants, including a $283,000 grant from DOE's National Renewable Energy Laboratory through

UT, a small grant from National Science Foundation through UT, and a DOE Small Business Innovation Research (SBIR) Grant, to develop its IPE systems and related technologies.

Midwest Optoelectronics, LLC was established in January 2002 to commercialize technologies developed at the University of Toledo in the areas of amorphous silicon based photovoltaics and hydrogen generation. MWOE is committed to develop advanced hydrogen generation technology to help build a clean hydrogen economy. This article may include forward-looking statements.

For further information, please visit http://www.mwoe.com. Information on UT's research in related areas can be found at: http://www.physics.utoledo.edu/~dengx/deng.htm.

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During Hannover Fair, Dr. Xunming Deng can be found at the Hydrogen and Fuel Cells Forum at 2:20pm, 4:00pm on Tuesday, 10:00am, 12:00pm on Wednesday, and 10am, 12:00pm on Thursday. You can also send him email at deng@mwoe.com.