Title : NTU opens Asia's first solar fuels lab
By :
Date : 08 February 2011 1056 hrs (SST)
URL : http://www.channelnewsasia.com/stories/singaporelocalnews/view/1109398/1/.html

SINGAPORE: Scientists at Nanyang Technological University (NTU) can now look forward to recreating an energy process that takes place in plants to produce hydrogen fuel from water and sunlight.

NTU's new Solar Fuels Lab, which is the first of its kind in Asia, was officially opened on Tuesday morning by NTU President Designate Professor Bertil Andersson, who is a pioneer in the "artificial leaf" technology.

Inspired by nature's ability to recreate an energy-producing process through photosynthesis, researchers at NTU will be working to find suitable combinations of chemical catalysts that can speed up the artificial photosynthesis process using minimal energy.

This will be used in a device which will be able to extract large amounts of hydrogen from water using sunlight.

Incoming NTU president Bertil Andersson said: "The leaf has chlorophyll that has a lot of protein molecules that may not be stable in an artificial system.

"So the [focus of the] research is [on finding] stable components in the technological system, in a technological machinery".

The new solar fuels laboratory at NTU aim to extract hydrogen fuel using solar energy.

And instead of conventional solar cell, the lab is testing if cheap substances like rust and titanium dioxide can efficiently capture solar energy to split water into oxygen and hydrogen.

NTU visiting professor James Barber said: "We can do this reaction right now. It's no problem. We can use platinum, or we can use very expensive semi-conductor materials.

"The challenge is to devise technology which is cheap, and is robust, and made of cheap materials".

Professor Barber is one of the few world-class experts to work on the project, which comprises about a dozen researchers from NTU, including professor Michael Gratzal, Dr Heinz Frei and Dr John Turner .

NTU said it plans to deliver the prototype in three to five years.

Current technology requires huge amounts of energy to draw minute amounts of hydrogen from water which makes it commercially unviable.

When perfected, this "artificial leaf" technology can reduce dependence on crude oil and help to ease problems caused by global warming and climate change.

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