

Cheap solar power now within reach, says study

It has been called the holy grail of the modern era - cheap solar energy. And scientists say it may be within our grasp soon.

A Queensland University team has grown the world's first titanium oxide nano crystals that are likely to revolutionise the way solar energy is harvested and used.

Creating these highly efficient miniature crystals with large reactive surfaces was thought of as impossible by most scientists.

Max Lu, who led the study, sounded upbeat that they were a step closer to the holy grail of cost-effective solar energy with their discovery.

"Highly active surfaces in such crystals allow high reactivity and efficiency in devices used for solar energy conversion and hydrogen production," said Lu.

"Titania nano-crystals are promising materials for cost-effective solar cells, hydrogen production from splitting water, and solar decontamination of pollutants.

"The beauty of our technique is that it is very simple and cheap to make such materials at mild conditions."

Lu said it wasn't just renewable energy where this research could be applied. These crystals are also fantastic for purifying air and water," he said.

"The same principle for such materials to convert sunlight to electricity is also working to break down pollutants in water and air.

"One could paint these crystals onto a window or a wall to purify the air in a room. The potential of applications of this technology in water purification and recycling are huge."

Lu said it would be about five years for the water and air pollution applications to be commercially available, and about 5 to 10 years for the solar energy conversion using such crystals.

Details of the project have been published in the latest edition of the journal Nature.

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