Most powerful microscope in the UK unveiled

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The most powerful atom resolving microscope in the UK was today revealed at the University of Cambridge. The new electron microscope, which will enable scientists to view individual atoms in any material, was officially unveiled by the Minister for Universities and Science, the Rt Hon David Willetts MP.

The unique machine, the FEI Titan 3 Electron Microscope, enables scientists to view and analyse structures at a resolution of 0.7 Angstrom - less than one-half the size of a carbon atom and over a million times smaller than the width of a human hair.

The microscope's impressive power will facilitate pioneering research

previously restricted by scientists' inability to view and analyse structures at such a small scale.

One of the research projects which will be using the new microscope is an investigation into diseases which can be characterised by the deposition of plaques, including Alzheimer's and Parkinson's. These plaques consist of rods as strong as steel called 'nanowires' which are made up of proteins that have misfolded. As they are only a few nanometres in diameter, they are exceptionally difficult to study and are too small to be seen using MRI scans or X-rays.

Researchers will also be using the microscope to study the next generation of lighting for our homes and offices. These new lights will save substantial amounts of energy (possibly enabling the UK to close - or not build - eight large power stations) as well as reduce carbon emissions. They will provide natural lighting, like sunlight, and could last for sixty years.

Another project will examine how to purify water in the developing world using special ultraviolet lights which kill all bacteria and viruses, an advance which could save millions of lives. The new UV lights are also likely to be used in the UK, being more effective and safer than adding chlorine to our water.

Minister for Universities and Science David Willetts, said: "Scientists working at the threshold of human discovery now have access to the UK's most powerful microscope. By capturing the sharpest possible images of individual atoms, researchers can swell their knowledge of how materials work to deliver far-reaching benefits for society, such as understanding what causes debilitating diseases like Alzheimer's and Parkinson's."

The new microscope is currently housed in the Nanoscience Centre.