

Cool nanotechnology can save energy

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Huge reductions in heating bills, safer surgery and the next generation of miniaturised computers are among the potential benefits of new nanotechnology developed at Leeds.

By suspending nanoparticles in water or other liquids, Professor Richard Williams and Dr Yulong Ding have created 'nanofluids' which can transfer heat up to 400% faster than other liquids. In a central heating system, nanofluids could increase efficiency without the need to use a more powerful pump, so saving energy and providing major environmental benefits.

The University of Leeds now has one of the largest teams in the world and the only group in the UK working on these 'nanofluids'.

The fluids could open the door to the next generation of computers, by overcoming one of the main limitations on developing smaller microchips: rapid heat dissipation.

During critical surgery, nanofluids could be used to cool the brain so it requires less oxygen and thereby enhance the patient's chance of survival and reduce the risk of brain damage. They could also be used to produce a higher temperature around tumours to kill cancerous cells without affecting nearby healthy cells.

Dr Ding said: "With the strong research team here at Leeds we have considerable expertise in developing nanofluids and already have a number of prototypes under investigation. We are looking to

characterise these fluids so we fully understand their heat conductive properties under static and dynamic conditions in both large and micro channels."

The researchers are talking to industrial partners about moving towards large-scale production.

Source: University of Leeds

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