

# Cold fusion conference demo raises hope for tabletop energy supply

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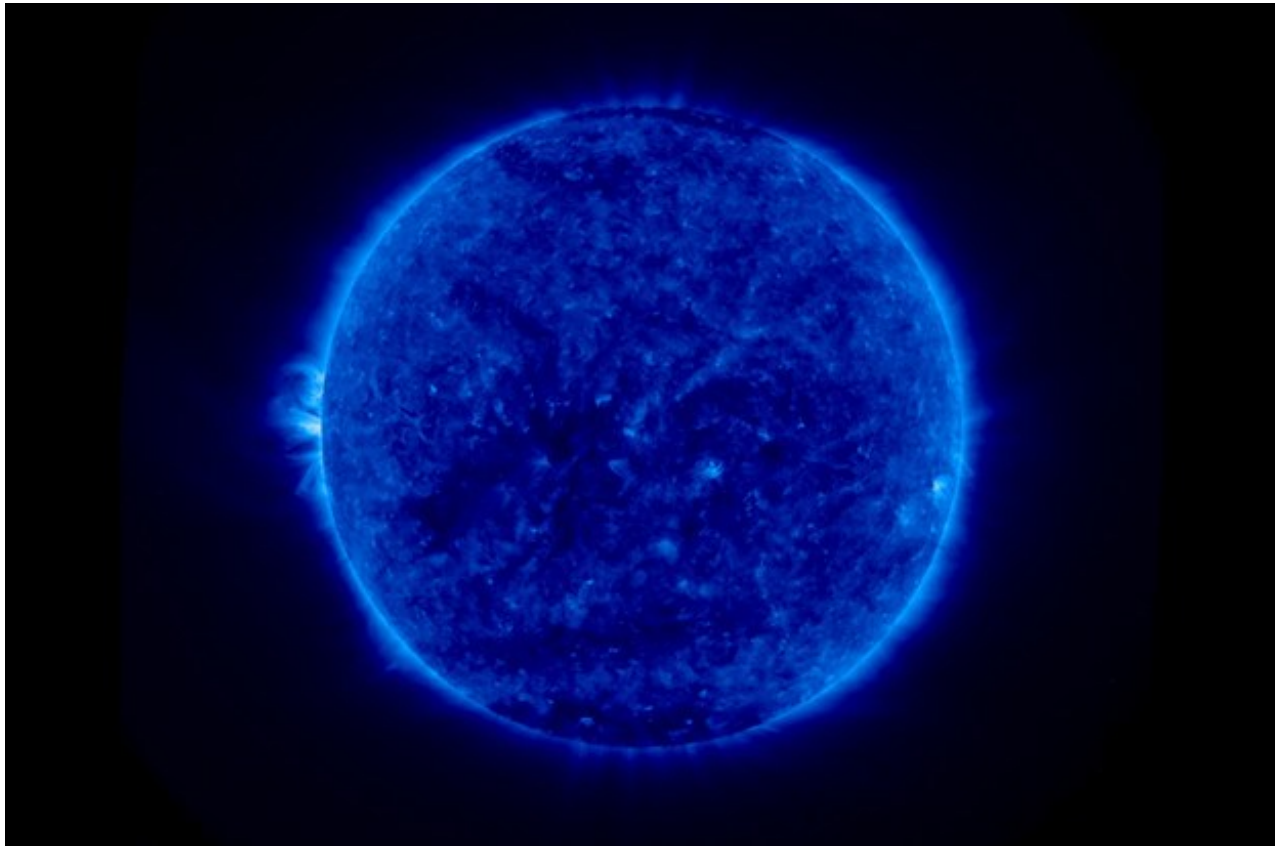
## Science

24 July 13 by [David Hambling](#)

False colour image of the Sun

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A [conference on cold fusion](#) at the University of Missouri continues until 26 July but nothing in it is likely to top a live



demonstration of a device apparently producing kilowatts of heat on 23 July.

The flamboyant Andrea Rossi, who did much to revive public interest in this field, is conspicuous by his absence. Depending on your viewpoint, Rossi is either in line for a Nobel, or clown-in-chief of the cold fusion circus. Rossi prefers to let the market decide whether his E-Cat LENR generator is real; he received a major boost a few months back when a group of scientists [concluded that his device really did produce over 1.5 kilowatts of excess heat](#). Since then Rossi has continued to make extravagant claims which cannot be verified; he says he is in partnership with a major US company who have [started manufacturing their own E-Cats](#). In secret.

In the absence of Rossi's showmanship, the limelight belongs to his former business partners [Defkalion Green technologies](#). Originally based in Greece, the company relocated to Vancouver in Canada with a "European R&D Centre" in Milan. Its generator is known as Hyperion; the standard version has nine modules in parallel producing 45 kilowatts total. It uses a few grams of powdered Nickel loaded with hydrogen gas. Defkalion claims its design is more stable than Rossi's with less risk of burn-out and power failure.

The demonstration was streamed live from Milan and watched online by about a thousand people. Few would have had the dedication to watch the entire nine-hour run, but the demonstration had to run long enough to prove that power was not coming from hidden batteries. Defkalion says it has run its reactor for up to six months in the past, but of course this has not been verified.

Mats Lewan acted as an independent observer of the Defkalion demonstration; [he gives a full account on his blog](#). His view is that it appears to be genuine, producing 5.5 kilowatts of heat from a 2.7-kilowatt input. The input and output measurements all appear legitimate, but it's difficult to rule out concealed power wires or other clever forms of cheating. Lewan reports a claim by Defkalion's President, Alex Xanthoulis, that the company is collaborating with various international partners and "several of these companies are among the ten major companies in the world".

The term "Cold Fusion" is barely whispered in respectable scientific circles. Perhaps that's why the event has become the 18th International Conference on Condensed Matter Nuclear Science -- but it's still abbreviated to ICCF-18 because of its original name, the International Conference of Cold Fusion. The few scientists who work in this area tend to refer to "Low Energy Nuclear Reactions" (LENR) instead, and even this is controversial. This annual conference is a rare opportunity for like minds to get together and discuss their results without too much outside harassment. Missouri is one of the few places favourable to LENR because of a \$5.5 million (£3.58 million) gift from film producer and philanthropist Sidney Kimmel to study the effect, establishing the University's Sidney Kimmel Institute for Nuclear Renaissance.

One skeptic who regularly attended these sessions until his death in 2001 was Scottish physicist Douglas Morrison. After listening to papers about barely measurable amounts of excess heat -- like the 700 milliwatts claimed for Pons and Fleischmann in their original experiment -- he used to stand up and ask "Please can I have a cup of tea?" The joke was that the excess heat was so small and unreliable that boiling a kettle with LENR was a remote prospect.

The situation has changed dramatically in the last two years, with several researchers claiming reliable and reproducible results showing they can generate commercial amounts of energy.

ICCF-18 also provides a platform for foot-soldiers in the LENR vanguard who have been slogging away at the science for decades. One of the stars of last year's event was Italian physicist Francesco Celani, who demonstrated a simple apparatus -- essentially a hydrogen-loaded nickel wire in a glass tube -- which he claimed was capable of reliably producing a few watts of excess heat. [He's back this year](#), reporting on a new, improved wire, more sophisticated measuring apparatus and a peculiar effect splitting water into hydrogen and oxygen close to the reaction itself. This effect might one day shed light on the underlying physics behind the excess heat, for now it's another baffling observation.

There was also [a paper](#) from one of the researchers affiliated with the Martin Fleischmann Memorial Project. Their aim is the widespread validation and replication of LENR, and this paper is a first step towards that, showing how they got positive, repeatable results with a simple apparatus

Other researchers are presenting papers on various aspects of LENR work -- the production of high-energy particles, new sensors, and also the sort of atomic transmutation that would occur if cold fusion genuinely involves fusing atomic nuclei.

There is also another company in the power business, the US LENUCO, [talking about its proposed multi-kilowatt reactor](#), which also used nickel powder and hydrogen. The researchers say their breakthrough the discovery at the University of Illinois of "Ultra-High-Density clusters" in the reacting nickel. They claim their device will be able [to run reliably for years at a time](#).

Confidence in this field is at an all-time high-among the believers anyway. Steven Krivit, editor of [New Energy Times](#) and long-term observer of LENR developments is less convinced by the whole event, which he feels has declined since its early days.

"I have had serious concerns about the general level of scientific quality at this conference series in the last few years," Krivit told [Wired.co.uk](#).

A combination of fraud and self-delusion may be inflating a bubble of belief in cold fusion. Anyone wanting a cup of tea at next year's conference may be able to get hot water from one of several brands of LENR-powered boiler. Commercial units might even be on sale; but buyers would still be well-advised to look very carefully for hidden wires.

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