Reddmatter

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<u>In news</u>— Scientists have discovered a new superconducting material named Reddmatter that could revolutionise the world.

About superconducting material-

- It can transmit electricity without resistance and pass magnetic fields around it, making it a breakthrough discovery that scientists have been pursuing for more than a century.
- The material works at both a low temperature and low pressure, which could allow it to be used in practical applications, such as power grids and nuclear fusion.
- The discovery of this material, nicknamed "reddmatter," could save up to 200 million megawatt hours that are currently lost due to resistance in power grids.
- It could also be used in high-speed, hovering trains and new types of medical equipment.
- The material was created by mixing a rare earth metal named lutetium with hydrogen and nitrogen and then subjecting it to high temperatures for two to three days.
- The material still needs to be heated to 20.5 degrees Celsius and compressed to about 145,000 psi to work, but this is less intense than other similar materials.
- The scientists involved in the research say that this material will mark a new era for the practical use of superconducting materials.

Superconductivity Breakthrough

inside the anvil cell, side view

Researchers at the University of Rochester revealed they created a superconductor dubbed 'reddmatter'. Usually these materials operate at extreme temperatures and pressures. But 'reddmatter' works at room temperature and a lower pressure than other superconducting materials. Here's how the researchers achieved it.

achieved it.

These 'reddmatter'
samples were made and
studied in a device called a
diamond anvil cell, or DAC.
The device enables
sunder different pressures
to see if those materials
under different pressures
to see if those materials
one superconducting, while
also tweaking the
temperature with a laser.

Soews are biphtened to
create force on the clamonds
and sample incide

The place where the
diamonds stouch is barely
violer than a human hair.
The extremely small area
of their tops enables the
anvil cells to create
immense pressures there.

Diamond
cutlet

Upward force