SOLAR PRO.

# Why don t room temperature superconductors use energy storage batteries

Can a room temperature superconductor save energy?
The energy loss comes from the resistance of copper or aluminum wire cables and transformers. With a room temperature superconductor,we could completely save this energy. Actually the known high-temperature superconductors have been used in electric power transmission in many experimental projects,such as Long Island HTS project.

How would a room temperature superconductor affect a computer?
It will likely have more,indirect effects by modifying other devices that use this energy. In general,a room temperature superconductor would make appliances and electronics more efficient. Computers built with superconductors would no longer get hot,and waste less energy.

Could a room-temperature superconductor be made?
"There's always been the hope of making a room-temperature superconductor,it's sort of a holy grail." And like a modern-day Sir Galahad,researchers from South Korea believe that search is over,publishing two papers in July 2023 detailing a new material that's supposedly a superconductor at room temperature and ambient pressure.

Why do superconductors usually occur at absolute zero?
So for a material to be a superconductor,that thermal energy must be lower than the paired electrons' energy. That's why superconductors usually occur at temperatures approaching absolute zero,when such thermal energy is extremely low. Emphasis on the word "usually."

Do room temperature superconductors violate physics theories?
Room temperature superconductors don't violate any known physics theories,but neither do any theories predict them. The difficulty of creating them boils down to an engineering puzzle,with a forbidding array of atoms and chemical properties across many combinations of materials to test.

Can superconducting materials store energy?
Yes. There are two superconducting properties that can be used to store energy: zero electrical resistance (no energy loss!) and Quantum levitation (friction-less motion).

MRIs are a different beast, they need very high electric/magnetic currents. High temperature superconductors are not able to deliver those, their superconductivity breaks down instead. That"s why we still use helium-cooled ones despite having invented ones that work at liquid nitrogen (much much cheaper) ones half a century ago.

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Since I don"t have alien sun flowers that emit heat rays or room temperature superconductor cloth, I will just have to do the boring thing and focus a parabolic mirror array at one end of a ...

It could make transmitting electricity much more efficient; result in faster-charging and higher-capacity electrical batteries; enable practical carbon-free nuclear fusion energy; and make...

The advent of superconductivity has seen brilliant success in the research efforts made for the use of superconductors for energy storage applications. Energy storage is constantly a substantial issue in various sectors involving resources, technology, and environmental conservation.

I believe superconductor with T c at room temperature could be found one day. In this report, let"s assume superconductivity can be realized at room temperature and the manufacture cost is reasonable. I"ll discuss the impact of room temperature superconductor from the energy point of view. Electric Power Transmission

I don"t think so, superconductivity does not change the energy storage problem, and conventional electric motors can be built that are already like 98%+ efficient. So a superconducting motor will only consume a tiny fraction less power than a conventional motor.

The "low-temperature" and "high-temperature" naming convention is an unfortunate byproduct of superconductivity"s scientific history. Superconductors were first discovered in 1911 when mercury was cooled below 4.15K and then later other pure metals like tin and lead were found to be superconductive at similarly cold temperatures (3.7K and 7.2K ...

Most materials people use are insulators, like plastic, or conductors, like an aluminum pot or a copper cable. Insulators show very high resistance to electricity. Conductors like copper show some resistance. ...

It seems like high-temperature and low-temperature superconductors are not too rare. But, why don"t any superconductors work at room temperature? No theories seem to ...

In a superconductor a subtle emergent interaction causes it to be the case that electrons find a gap, or range of energies with no valid states, form in their allowed states and we say the system has entered the superconducting phase when the size of this gap in energy exceeds the average amount of thermal energy the electrons have (i.e. E1"-E1 = scattering energy change << the gap).

But the fact that these materials are different from conventional superconductors offers some possibility that room-temperature superconductors could exist. One class of high-temperature superconductors is based on copper; another is ...

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