

# **Best of Last Week—exception to heat law, adding AI-generated bass to music, sea ice to slow down**

March 11 2024, by Bob Yirka

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Credit: Stefan Lattner (DALL-E)

It was a good week for physics research as a team led by a group at the University of Massachusetts Amherst reported an exception to a 200-year-old scientific law governing heat transferâ&#128;"they found an example showing that Fourier's Law [does not always hold true](#) at the macro scale. And a team of engineers and physicists at MIT's Plasma Science and Fusion Center conducted tests that showed high-temperature superconducting magnets [are ready for fusion](#). A combined team from Lanzhou University and Hubei University, proposed a new scheme for a [quantum battery](#) using waveguides that allows for overcoming environment-induced decoherence and charging distance limitations and based on a rectangular hollow metal waveguide.

In technology news, a team of computer and political scientists led by a group at the University of Konstanz [mapped the ownership](#) of network infrastructures in democratic and authoritarian states worldwide to show how autocrats control the internet via state-owned service providers. And a team of engineers at the KTH Royal Institute of Technology developed a [new hydrogen producing method](#) that is simpler and safer than conventional methods and produces resulting oxygen and hydrogen gases separately rather than simultaneously. Also, another team of engineers, this one at Sony Computer Science Laboratories, created a new latent diffusion model that can create realistic and effective [bass accompaniments for musical tracks](#). And a team of researchers at the National University of Singapore developed [a new triple-junction tandem solar cell](#) with world-record efficiency.

In other news, a combined team of medical researchers from Friedrich-Alexander-Universität Erlangen-Nürnberg and Universitätsklinikum Erlangen investigated [the immune response](#) in a

man who received 217 COVID vaccinations. Also, a team of environmental engineers at York University found that after decades of Arctic sea ice moving faster, models now suggest [a dramatic reversal is coming](#). And finally, a team led by Italian neuroscientists from the IMT School for Advanced Studies Lucca, found evidence that [the brain builds emotions](#) regardless of the senses.

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Citation: Best of Last Week—exception to heat law, adding AI-generated bass to music, sea ice to slow down (2024, March 11) retrieved 10 May 2024 from <https://sciencex.com/news/2024-03-week-exception-law-adding-ai.html>

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