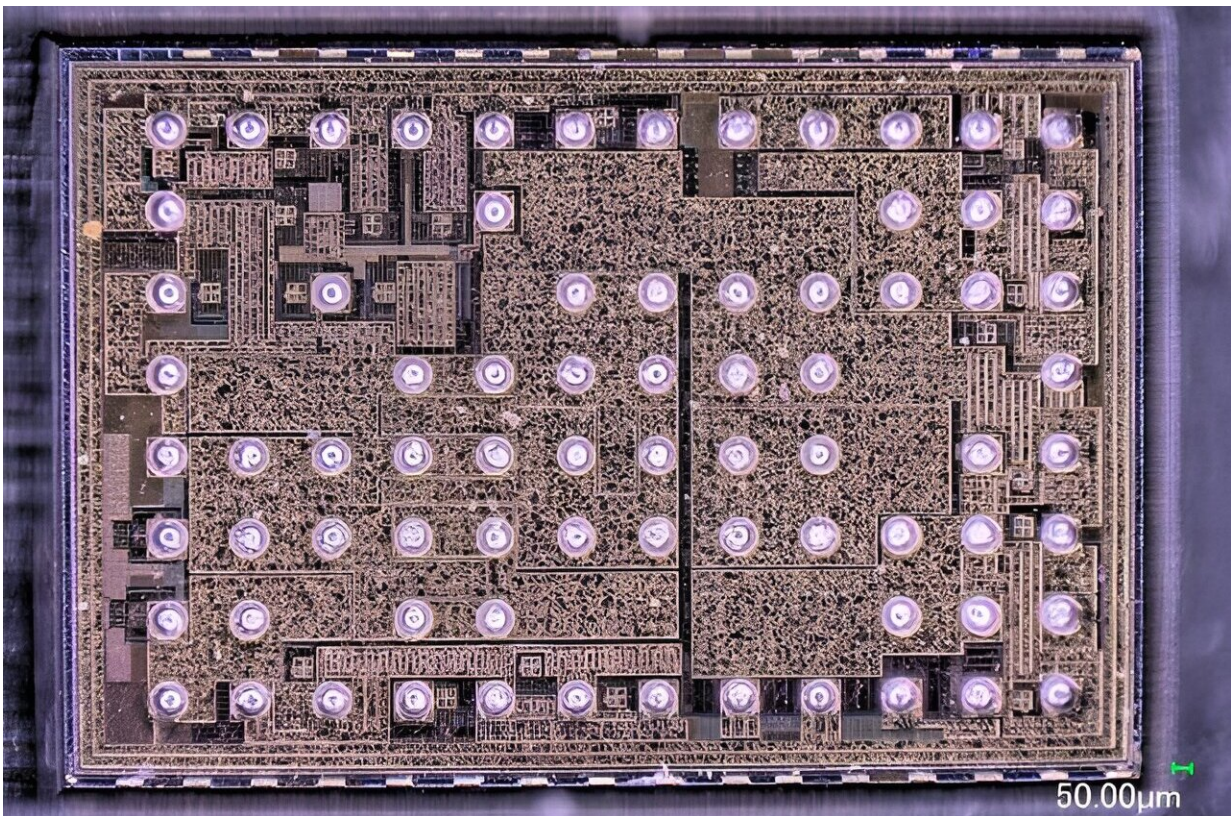


# Tiny power converters that run on vibrational energy

February 21 2024, by Ioana Patrinenaru



Die photograph of the proposed piezoelectric converter. Credit: University of California San Diego

University of California San Diego and CEA-Leti scientists have developed a ground-breaking piezoelectric-based DC-DC converter that

unifies all power switches onto a single chip to increase power density. This new power topology, which extends beyond existing topologies, blends the advantages of piezoelectric converters with capacitive-based DC-DC converters.

The power converters the team developed are much smaller than the huge, bulky inductors currently used for this role. The devices could eventually be used for any type of DC-DC conversation, in everything from [smart phones](#), to computers, to server farms and AR/VR headsets.

The results were presented in the paper, "An Integrated Dual-side Series/Parallel Piezoelectric Resonator-based 20-to-2.2V DC-DC Converter Achieving a 310% Loss Reduction," Feb. 20 at [ISSCC 2024](#) in San Francisco.

"The Dual-side Series/Parallel Piezoelectric Resonator (DSPPR) is the first IC used for PR-based power conversion, and achieves up to 310% loss reduction over prior-art published and co-designed discrete designs for VCRs

Citation: Tiny power converters that run on vibrational energy (2024, February 21) retrieved 28 April 2024 from <https://techxplore.com/news/2024-02-tiny-power-vibrational-energy.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.