

FIT-4-NMP Networking and Brokerage Event

organized by FIT-4-NMP H2020 project at the 45th International Semiconductor Conference - CAS 2022

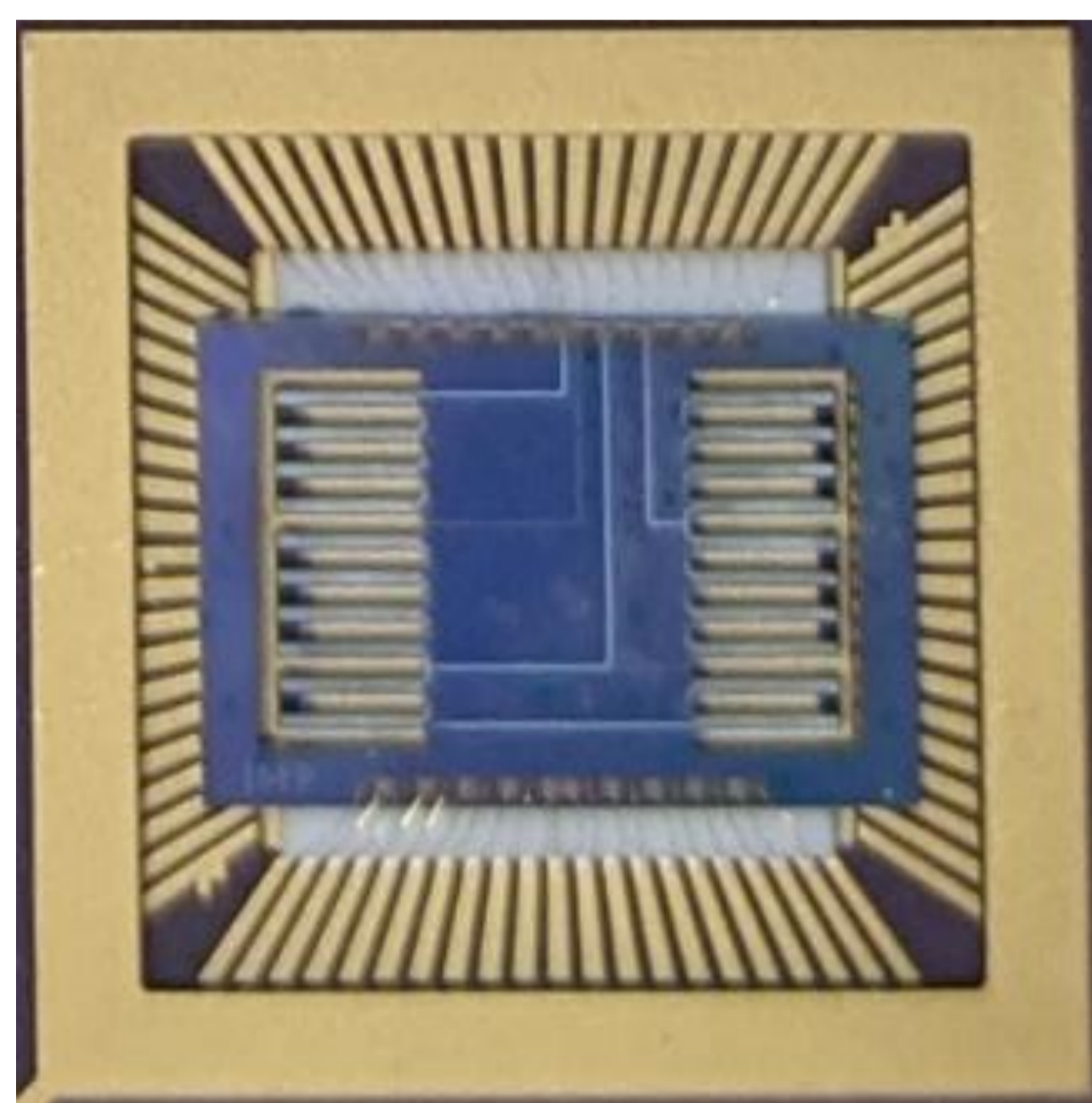
MEMS-based energy harvesters

Applications

Integrated, miniaturized, highly energy efficient, maintenance-free and environmentally-friendly energy sources, with extensive scalability and re-configurability.

Targeted applications:

- Implantable devices (powering up active bio-medical devices that generally use replaceable batteries);
- Automotive and aerospace applications (harvest motion vibrations);
- Environmental sensors arrays (to power up remote or inaccessible water or air monitoring systems);
- Smart factories.

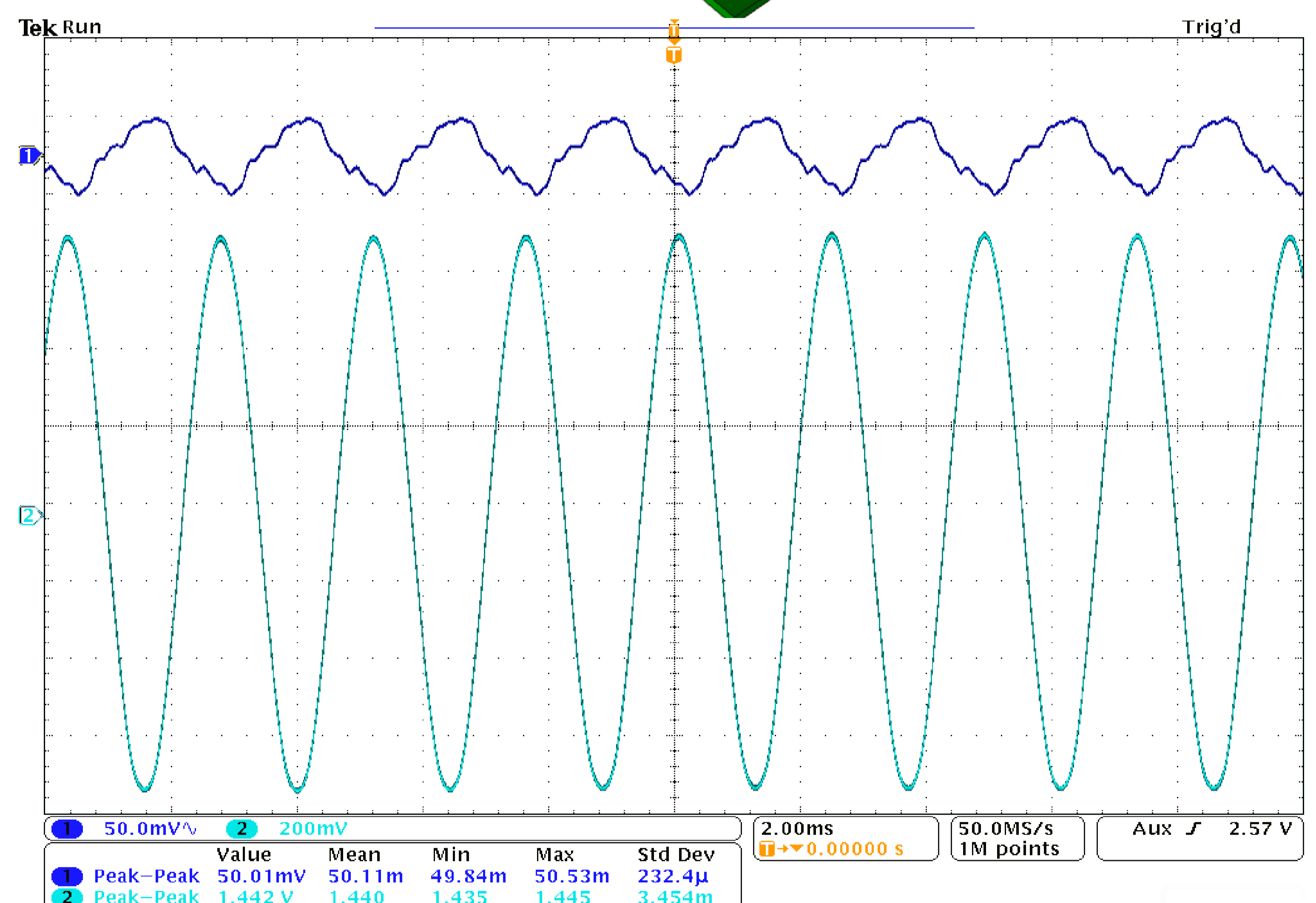
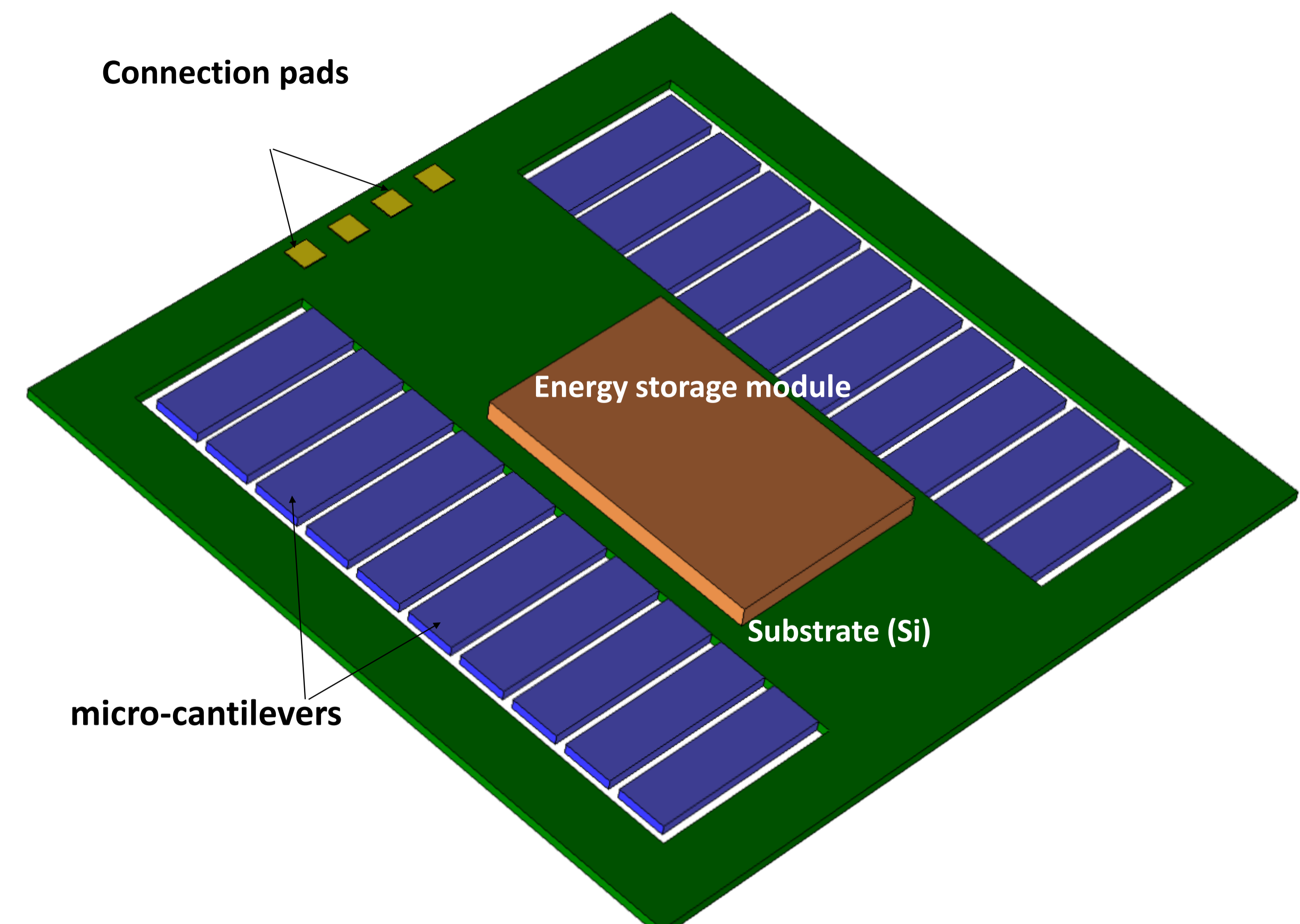


Fabricated piezoelectric resonant structures

Details

The systems include silicon-based piezoelectric resonators, an energy storage module and the required electronics.

The piezoelectric energy harvester can be customized to match the ambient conditions like resonant frequencies and acceleration, as well as the electrical parameters like the voltage threshold for the electronic module and current capabilities for the storage module.



Vibration analysis of the piezoelectric cantilevers at 411 Hz and 1g

Targeted topics and challenges

- Energy;
- Process technology, equipment, materials and manufacturing.

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More info:

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- Łukasiewicz Instytut Technologii Elektronowej Poland
- Medbryt Poland
- EPFL Switzerland
- CCRS @ ETH Zurich

