

Slip-and-slide power generators

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Researchers from Vestfold University College in Norway have created a simple, efficient energy harvesting device that uses the motion of a single droplet to generate electrical power.

The new technology could be used as a power source for low-power portable devices, and would be especially suitable for harvesting energy from [low frequency](#) sources such as human body motion, write the authors in a paper accepted to the American Institute of Physics' (AIP) journal [Applied Physics Letters](#).

The harvester produces power when an electrically conductive droplet (mercury or an ionic liquid) slides along a thin microfabricated material called an electret film, which has a permanent electric charge built into it during deposition.

Cyclic tilting of the device causes the droplet to accelerate across the film's surface; the maximum output voltage (and power) occurs when the sliding droplet reaches its maximum velocity at one end of the film.

A prototype of the fluidic energy harvester demonstrated a peak output [power](#) at 0.18 microwatts, using a single droplet 1.2 millimeters in diameter sliding along a 2-micrometer-thick electret film.

More information: Power Generation from Conductive Droplet Sliding on Electret Film, Zhaochu Yang et al., *Applied Physics Letters* (2012).

Provided by American Institute of Physics

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