

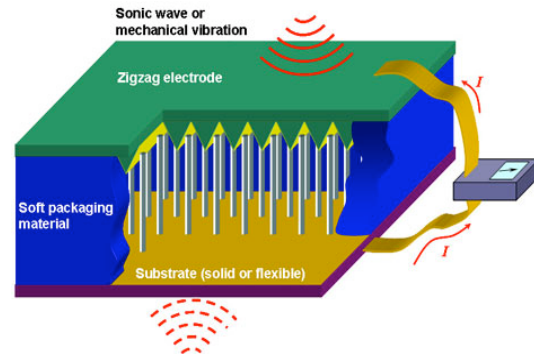
Nanogenerator Converting Body Energy to DC

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Nanotechnology has revolutionized the world of science and technology. It is inclusive of many disciplines within the field of science and medicine. Much of the field of nanotechnology is based on the molecular level. It encompasses disciplines such as colloidal science, chemistry, applied physics, material science along with mechanical, electrical and biomedical engineering. These systems are much greater in surface area than in volume and can perform many unique tasks at a microscopic level. At a microscopic level rather than at the macroscopic level a material's properties vary greatly which allows for different use of that material.

At the Georgia Institute of Technology a group of researchers including Zhong Lin Wang, a regents professor leading the group of researchers, developed a device that converted body energy into a steady DC current output. This, says Wang, "is a major step toward a portable, adaptable and cost-effective technology for powering nanoscale devices." The device is based on an array of zinc oxide nanowires that, when stimulated by vibration or movement creates direct current electricity. This is integrated in a biomedical aspect to produce direct current electricity through normal body functions such as blood flow or muscle contraction. According to Wang, this nanogenerator will allow us to recycle energy in order to power many of the nanodevices that have been created

without the need for batteries or direct connection electrical currents.



The generator was designed to take advantage of the piezoelectric and semiconducting properties of zinc oxide nanostructures that, when flexed, produce small electric charges. The zigzag electrode is spaced from the wires so that when they do vibrate they come in contact with the projections on the electrode transferring the electric charges.

- [Approaches for biological and biomimetic energy conversion](#); PNAS (Proceedings of the National Academy of Science); April 4th, 2006; vol. 103; no. 14
- <http://en.wikipedia.org/wiki/Nanotechnology>
- http://www.medgadget.com/archives/2007/04/nanogenerator_converts_bodys_energy_into_dc_output.html
- http://www.nanotechbuzz.com/50226711/nanogenerator_creates_electricity.php