

## New gadgets for 2010: Nuclear battery

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Are you tired of your short laptop battery life with only a few hours? Would you like the charge of your mobile phone to last a couple of months? Well, the answer to your "prayers" might be the nuclear batteries, which are been developed at the University of Missouri. They are designed especially for providing a lasting source of energy. And some people think these batteries could replace the current ones, including those used by the electrical cars. According to the creators, a nuclear battery has a very enormous capacity to generate electricity when compared to a regular one.

The batteries have always been the Achilles' heel of the mobile devices. Usually, the designers of electronic devices for mass consumption (like laptops or media players) use small displays or screens that are not very bright in order to save the scarce energy resources that are provided from the regular batteries. But the new nuclear battery would bring a solution based on a liquid semiconductor (rather than a solid semiconductor) that will produce a much longer lifetime for the battery. The reason is the solid semiconductors are attacked constantly by some radioactive elements used by other types of batteries, while the liquid semiconductor is quite resistant to these attacks. Although the term "nuclear" can be a little perturbing, the fact is that these batteries are not very different from those batteries used in, for example, medical pacemakers. The new radioisotope battery has the size of a penny and provides much more power than the traditional ones because, according to the researches, its capacity is very superior. Jae Kwon, assistant professor of electrical and computer engineering at the University of Missouri, said that the radioisotope battery "can provide power density that is six orders of magnitude higher than chemical batteries". That is to say, it provides no less than a million times more charge than any "normal" battery. Kwon and his research team have spent enough time working to solve many problems that they have encountered when developing this type of battery. One important thing is the batteries need to be small and thin in order to be practical and useful; this way, they could be used to power watches and small electronic devices. As mentioned before, the prototype (which you can see in the picture below) has the size and thickness of a penny, but the researchers think they can achieve a thinner battery. In order to do this, Kwon has required the collaboration of another professor: J. David Robertson (chemistry professor and associate director of the MU Research Reactor). Together, they hope to maximize the power of the nuclear batteries as well as reduce the size and test other materials to make additional improvements. Kwon thinks that the final battery, which would be used in commercial gadgets, could be thinner than a human hair. For the moment, the research team have required a provisional patent in order to protect the exclusive right to use this invention.