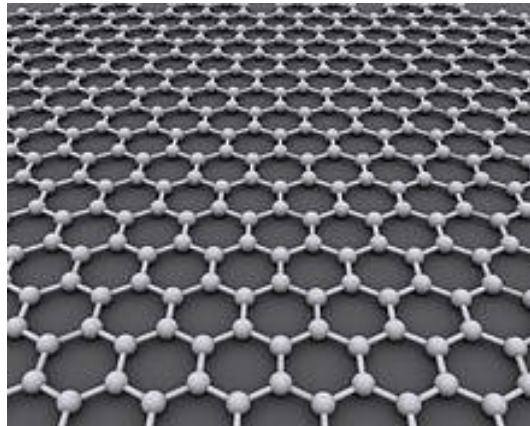


# Fast-Charging Everlasting Battery Power from Graphene

Source: [phys.org](http://phys.org)

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by Han Lin, Fresh Science

Swinburne University researchers have invented a new, flexible energy-storage technology that could soon replace the batteries in our cars, phones and more.

Han Lin's new super [battery](#) (actually, a supercapacitor) can store as much energy per kilogram as a [lithium battery](#), but charges in minutes, or even seconds, and uses carbon instead of expensive lithium.

The majority of batteries used in Australia are lead-acid batteries. These have three main disadvantages: they can take hours to charge, they have a limited lifespan for charging and discharging, and they're bad for the environment, therefore requiring special, expensive disposal processes.

Han's supercapacitor charges extremely fast, can be charged and discharged millions of times, and is environmentally friendly.

Previously, a major problem with supercapacitors has been their low capacity to store energy. But Han has overcome this problem by using sheets of a form of carbon known as graphene, which has a very [large surface area](#) available to store energy.

Large scale production of the graphene that would be needed to produce these supercapacitors was once unachievable, but using a 3-D printer, Han is able to produce graphene at a low cost.

And because the technology is extremely flexible and thin (as thin as ordinary printing paper) the new super batteries could be potentially be built into clothing, or worn as a watch strap, to

achieve a wearable power supply.

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