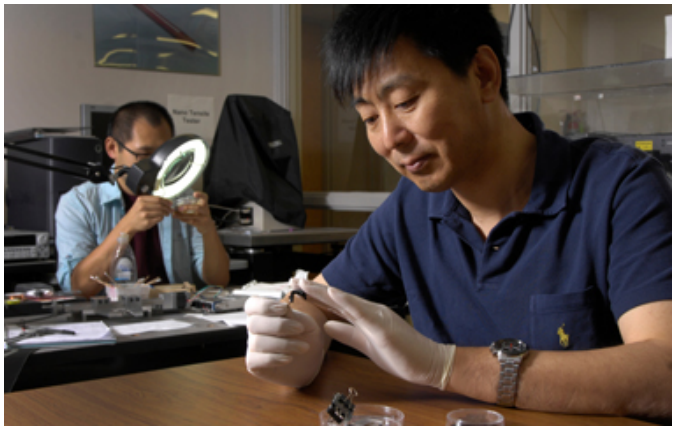
In the future chargers will not only be part of our lives-- they will be part of our wardrobes, as Xiadong Li from the University of South Carolina proposes a means turning a cotton T-shirt into a source of electric power.



Li and research partner Lihong Bao even provide the recipe on how to do exactly that. Get a cheap cotton T-shirt, soak it in a flouride solution, dry it, then bake it in an oxygen-free environment (in order to avoid charring or burning) at a high temperature.

The treatment transforms the cotton fibres making the T-shirt into an "activated carbon textile"-- a flexible material that acts as a double-layer capacitor (or supercapacitor) capable of storing electrical charges.

One can also enhance the electrode performance of the fabric further by coating individual carbonised fabric fibres with 1nm-thick manganese oxide "nanoflowers," creating a "stable, high-performing supercapacitor."

The final hybrid fabric not only stores electric charges-- according to researchers it is also resilient, as performance doesn't diminish by more than -5% even after thousands of charges.

"By stacking these supercapacitors up, we should be able to charge portable electronic devices such as cell phones," Li continues.

The process of activated carbon creation is both cheap and green, since other methods involve oil or other non-environmentally friendly chemicals as starting materials.

Maybe in the future we will not simply carry mobile chargers around-- we will be actually wearing them.

Go Clothing the Body Electric: Fabric in Modified T-Shirt Can Store Electrical Charge