

A Paper-thin Solar Cell



Image Credit: Melanie Gonick, MIT

RESEARCHERS at MIT (Massachusetts Institute of Technology), US, have developed a scalable fabrication technique capable of producing ultrathin, lightweight fabric solar cells. These cells, much thinner than human hair, can easily and rapidly convert any surface into a power source. As a wearable power fabric, they can provide energy on the go or be quickly deployed to remote locations in an emergency.

Source: MIT news

Flameproof Lithium-ion Batteries

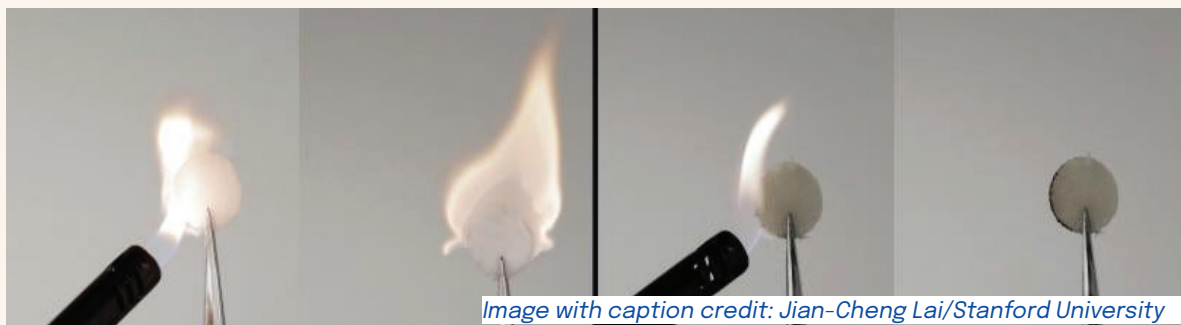


Image with caption credit: Jian-Cheng Lai/Stanford University

Standard battery materials (left) catch fire when exposed to flame, but a new material designed by SLAC and Stanford researchers (right) does not

A team of researchers from the Department of Energy's SLAC National Accelerator Laboratory and Stanford University developed a non-flammable electrolyte for lithium-ion batteries. While conventional lithium-ion battery electrolytes are made of a lithium salt dissolved in a liquid organic solvent, such as ether or carbonate, which heat up rapidly and could catch fire easily; whereas the electrolyte developed by the researchers, Solvent-Anchored non-Flammable Electrolyte (SAFE), has proved to be non-flammable at high temperatures during tests in a lithium-ion battery. The report of the study was published in *Matter*.

Source: SLAC National Accelerator Laboratory, Stanford University, News

Heart Failure Monitoring — Belt with sensors Monitors 24/7



RESEARCHERS from Florida Atlantic University's College of Engineering and Computer Science in association with FAU's Christine E. Lynn College of Nursing have developed a device model which is easily wearable and light in weight to monitor the physiological parameters of heart failure. The Healthcare Wearable Device (HWD) is embedded with sensors to monitor these parameters which need to be carefully monitored in case of heart failure. These parameters are thoracic impedance, ECG, heart rate, and motion activity. Reading of HWD can be viewed on smartphones. The study appeared in *Scientific Reports*.

Source: Florida Atlantic University, News

Skin-integrated Wireless Haptic Interface Device



Credit: Dr Yu Xinge's research group / City University of Hong Kong

The wireless skin-integrated electrotactile system comprises two parts: a soft driver unit (right), attached to the forearm, and the hand patch (left)

A team of researchers from City University of Hong Kong (CityU) developed a device called WeTac which is a soft, ultrathin, light in weight, wireless, and wearable hand patch as compared to the currently available devices which are bulky, tangled in wire and restricted in providing good VR (Virtual Reality) and AR (Augmented Reality) experience. On the contrary, the device allows users to experience virtual touch in a vivid, “personalised” way. The research findings were published in the journal *Nature Machine Intelligence*.

Source: City University of Hong Kong, News