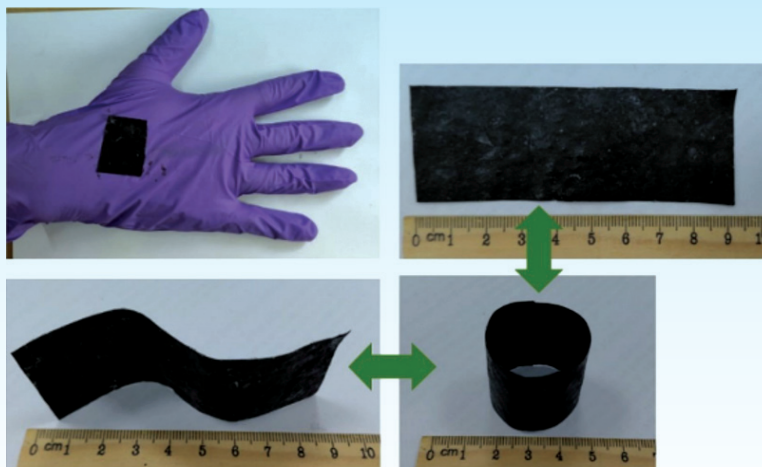




WHAT'S NEW

Researchers develop Sunlight-charged patch for wearables

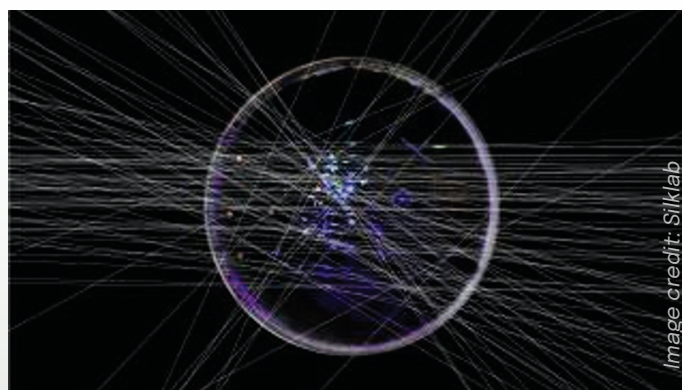


RESEARCHERS from the IIT Bombay, in collaboration with IISER Trivandrum, have developed a sunlight-charged, wearable thermal battery that could be coated directly onto fabric to warm the body like a winter sweater. This thermal battery works with the help of the fabric patch, which directly absorbs sunlight, stores it internally as heat, and releases the heat in the dark.

The patch is made up of a special polymer to store sunlight as heat. According to the researchers, all the individual components are biocompatible; therefore, the polymer composite is safe to contact with human skin or clothing. Moreover, the material is also flexible, lightweight, and entirely solid; it can be seamlessly integrated into textiles without compromising comfort or mobility. The research was published in *Small*.

Source: IIT Bombay News

Colour changing paint to measure force



The lines show strike angles when Terri Lyne Carrington played on a drum coated with the special paint, the colours showing the impact points

RESEARCHERS from Tufts University have developed a unique paint that changes colour when its surface is hit. The paint doesn't use any electronic circuitry or sensors; it's only a chemical play. This paint is made with a colour-changing polymer called polydiacetylene, which undergoes a blue-to-red transition under mechanical stress. Its applications include handling the history of shipped packages, placed on insoles to analyse an orthopaedic patient's gait, etc.

According to researchers, the paint could be brushed, sprayed, or drop cast on anything like helmets, footwear, clothing, ropes and cables to measure stress. Moreover, its coating is lightweight, inexpensive and easy to scale up; additionally, it could detect forces in the range of 100-770 newtons. The research was published in *Advanced Science*.

Source: Tufts Now

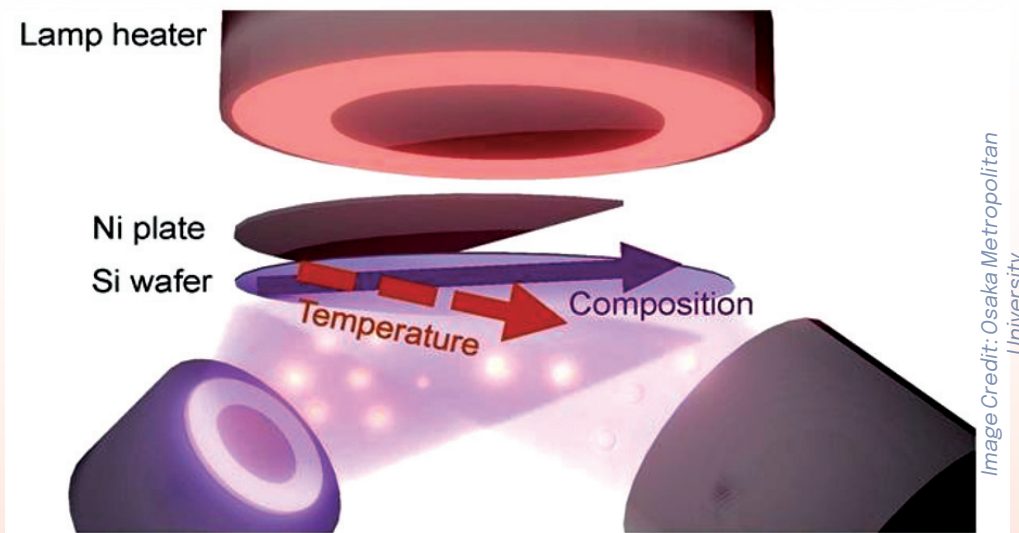
Next-generation compression sleeves for cancer survivors living with lymphedema



ADDRESSING the issue of cancer survivors living with lymphedema (swelling of tissues), researchers from the University of Waterloo have developed next-generation compression sleeves. The sleeves contain inflatable balloons, which are easy to wear and enable patients to move freely. According to researchers, the cost-effective compression sleeves have a long-lasting battery to run for eight hours.

Source: University of Waterloo News

Lead-free thin films turn everyday vibrations into electricity



RESEARCHERS from the Osaka Metropolitan University have developed lead-free thin films that turn vibrations into electricity. To make it possible, researchers engineered a manganese-doped bismuth ferrite ultrathin film grown directly on silicon wafers. Using these films, it would be possible to produce environmentally friendly energy-harvesting devices that are compatible with conventional semiconductor manufacturing. According to researchers, these could also be used in various applications like smart sensors, Internet-of-Things devices, and self-powered devices. The research was published in *Microsystems & Nanoengineering*.

Source: Osaka Metropolitan University News