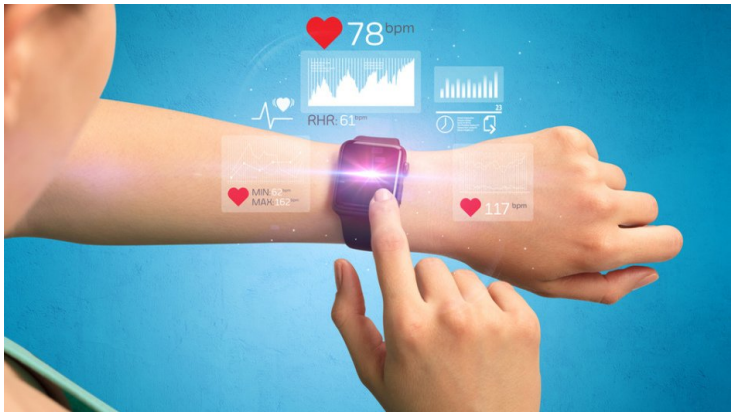
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IISER Bhopal develops organic crystalline materials for healthcare wearables

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To be used for highly sensitive pressure sensors



Scientists at the Indian Institute of Science Education and Research (IISER) Bhopal have developed a new, flexible organic crystal that shows great potential for use in highly sensitive pressure sensors. These crystals were developed in IISER Bhopal, and the understanding of the response of these crystals to mechanical deformation was done in collaboration with researchers from the University of Queensland and the Queensland University of Technology in Australia.

The device fabricated with this material has a high sensitivity to pressure, when compared to existing materials, making it a promising component for the future development of the technology of pressure sensors.

There is a growing interest in the use of organic materials for electronic applications. The flexibility of organic materials makes them ideal for creating flexible electronic devices such as displays and sensors that can be bent or curved, providing a new level of design freedom. Organic crystals, in particular, have immense potential in the field of electronics, due to their few defects and minimal grain boundaries.

The researchers from IISER Bhopal and University of Queensland have developed a new organic crystal – 4-trifluoromethyl phenyl isothiocyanate (4CFNCS) – that is flexible enough to be bent, twisted, and coiled.

Dr Mitradip Bhattacharjee, Assistant Professor, Electrical Engineering and Computer Science, IISER Bhopal, said, “These materials can be made without harmful chemicals or high-energy conditions, making them better for the environment. Apart from the applications of touch screens, such materials will be of great use in the design of flexible electronic devices, such as those used in healthcare, intelligent systems, wearable devices, and self-powered devices.”