

This IIT-I goggle prototype is cool, literally!

Obstructs Heat, Delivers Cooling Sensation To Eyes

TIMES NEWS NETWORK

Indore: The Indian Institute of Technology (IIT), Indore has engineered a prototype for innovative flexible goggles engineered to obstruct heat whilst delivering a cooling sensation to the eyes.

These sophisticated goggles possess the proficiency to filter infrared heat utilising electrochromic colour modulation. The electrochromic colour modulation constitutes a mechanism to regulate the heat-blocking capability in response to a minimal electric current. "The technology will

be of immense use for people working under extreme heat conditions especially our army working in such areas and personnel working in sands. With a little modification in design the same technology can be utilised for making goggles for watching 3D cinema", said Professor Rajesh Kumar from the Physics Department at IIT Indore, the lead of the project.

The research team included Bhumika Sahu, Anjali Ghanghass, Nikita, Dr Samera Ivaturi, Dr Suchita Kandpal, Love Bansal, Deb Rath, Dr Subin KC and Dr Ravi Bhatia.

The prototype developed by IIT-I exhibits flexibility and can be manipulated through bending or twisting, rendering it suitable for diverse practical applications necessitating heat isolation.

The goggle's distinctive architecture incorporates a mix of materials, comprising tungsten chalcogenide and oxide, combined with electrochromic active materials.

"This combination lets the device block over 15 per cent of heat when the device is ON and maintain a cooler temperature, with a measurable 6°C difference between the two si-

des of the goggles' surface," said Kumar. The lenses demonstrate the capability to alternate between blue and magenta hues, furnishing a visible indication of its active heat-filtering state. Beyond heat obstruction, the goggle exhibits remarkable light control, achieving optical modulation up to 60 per cent. This advancement indicates the emergence of eye-care devices that not only safeguard against sunlight but also amplify comfort through heat reduction—a significant development for protective eyewear, the institute said.