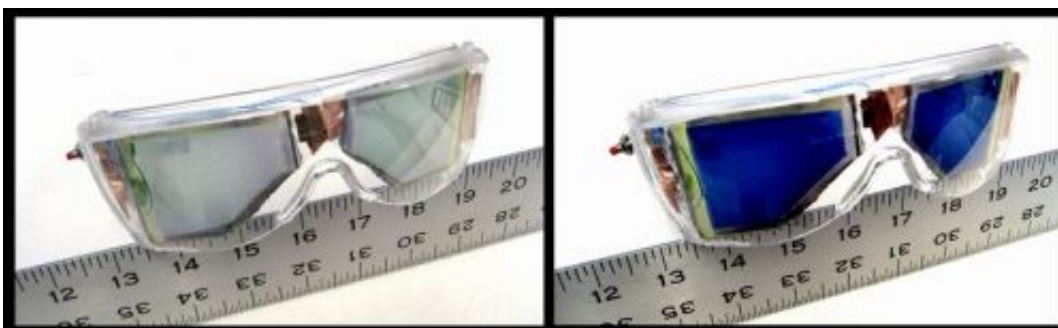


'Smart' sunglasses feature lenses that change color on demand

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"Smart" sunglasses can be adjusted so the lenses block from 55 percent (left) to 95 percent (right) of the incoming rays. Credit: Chunye Xu, University of Washington

Get ready for the coolest, most colorful shades on the planet: Chemists at the University of Washington in Seattle say they are developing 'smart' sunglasses that will allow the wearer to instantly change the color of their lenses to virtually any hue of the rainbow.

Whether you like your lenses clear, red, green, blue or purple, virtually any color could be obtained instantly by tuning a tiny electronic knob in the frame, the researchers say. Their study was described today at the 233rd national meeting of the American Chemical Society.

"Through polymer chemistry, we've developed lenses that aren't like anything else on the market. This could be the fashion statement of the

future,” says Chunye Xu, Sc.D., a chemical engineer at the University of Washington and associate director of the University’s Center for Intelligent Materials and Systems (C.I.M.S.).

The lenses of the ‘smart’ sunglasses feature a unique type of electrochromic polymer that has the ability to change levels of darkness and color in the presence of an electric current. Researchers have been developing electrochromic polymers for decades, but Xu’s lab is one of just a few using the technology to develop improved eyewear.

Xu has developed a prototype of the eyewear that demonstrates the feasibility of these color-changing sunglasses. Powered by a tiny battery, the prototype shades currently resemble a pair of laboratory goggles with a button attached to the frame. Turning the button activates the battery and dials up the desired color, the researcher says. Ultimately, the sunglasses can be manufactured to resemble the size and shape of regular sunglasses and should cost about the same, according to Xu.

In laboratory demonstrations, Xu has shown the lenses can switch from transparent to blue, plus various shades in between, at the flip of a switch. “We are working on a multicolored device as well, but no prototype is available yet,” she says.

As the glasses require power only during switching, the device saves energy and prolongs battery life. Like regular sunglasses, they also can be coated with a protective layer to block ultraviolet light.

Fashion-conscience shoppers will have to wait a little while for this latest thing in eyewear: A practical version of the ‘smart’ sunglasses won’t be available to consumers for another one to two years, says Xu, whose lab has filed several patents related to the color-changing glasses. More testing is needed, she notes.

So far, Xu and her associates have produced the electrochromic polymers in red, blue and green. By combining the polymers of different colors into multiple layers and supplying different levels of current from the batteries in the sunglasses, a wide variety of different colors can be produced in the lenses, Xu says. Funding for the study was provided by the University of Washington.

Source: American Chemical Society

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