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RESEARCH HIGHLIGHT | 02 September 2025

Liquid-crystal specs refocus with the push of a button

Bifocals for the touchscreen era accommodate users who mix near- and far-sightedness.

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Wearers of the liquid-crystal bifocals can refocus by simply pressing the switch button on the specs' right arm. Credit: Y.-H. Lin *et al./Phys. Rev. Appl.*

After more than 200 years, one of Benjamin Franklin's most famous inventions, bifocal spectacles, could undergo a major makeover. Researchers have devised a way to electronically switch the strength of a pair of glasses so that bifocal-wearers can avoid the pesky head tilt needed to refocus their vision from near to far¹.

The idea for such a pair of specs has been circulating since the 1970s. But such lenses have been notoriously difficult to engineer.

Yi-Hsin Lin at the National Yang Ming Chiao Tung University in Hsinchu, Taiwan, and her colleagues set out to conquer the challenge using lenses made of liquid crystals, which your mobile-phone screen uses to turn light into images. The lenses can zoom in or out in response to changes in an electric field generated by battery-powered electronics in the frames. With a gentle touch to the right temple, or arm, of the glasses, users can retune their vision to focus on objects near or far.

The authors say the new technology has potential for mass production, and might be especially useful for virtual-reality headsets.

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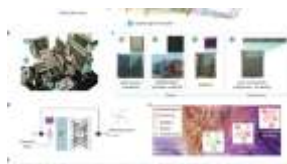
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