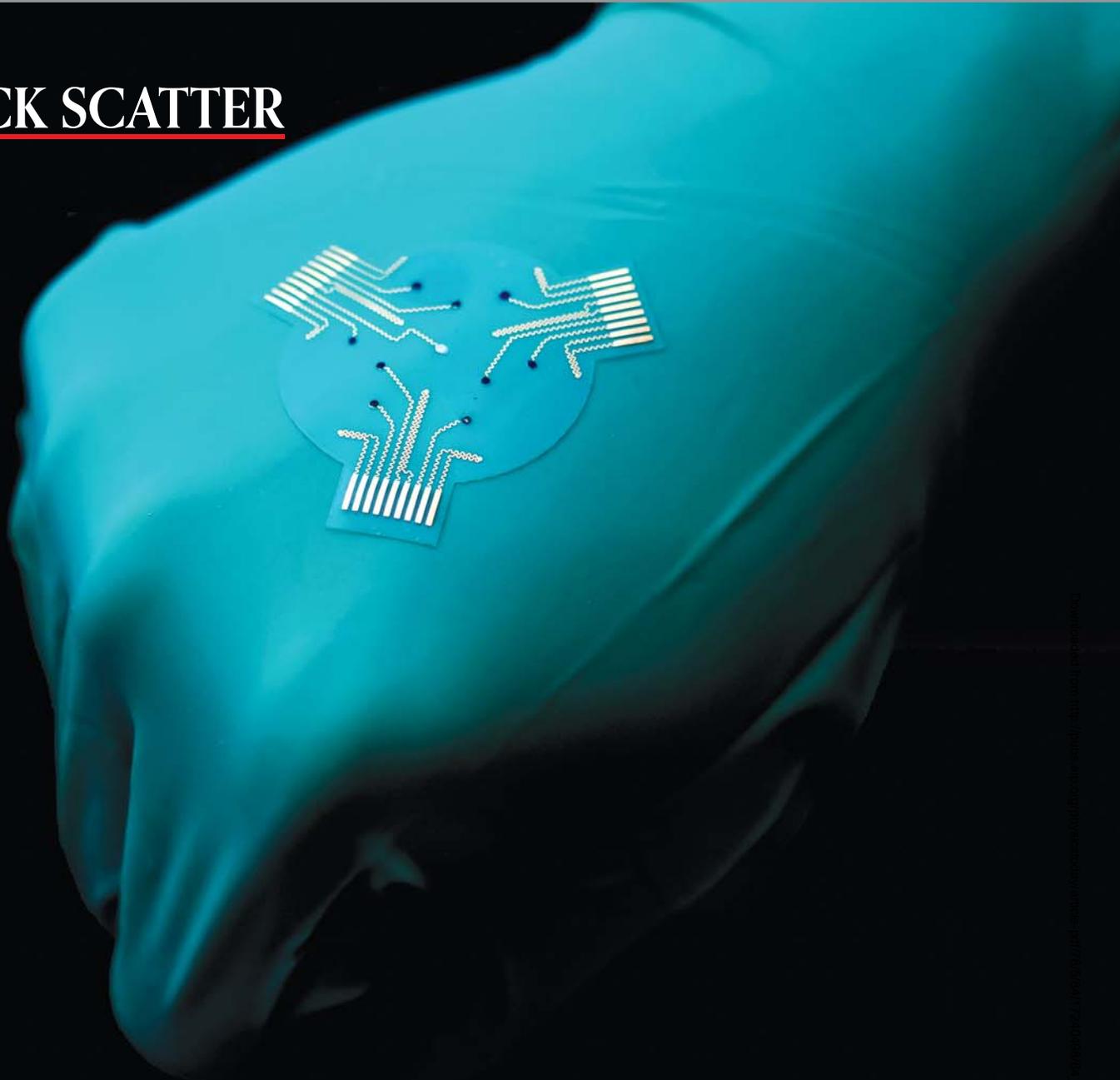


# BACK SCATTER



## A smart bandage

Watches that track a wearer's heart rate and other biomedical data are becoming increasingly common and even prescribed by doctors in some cases. Researchers are expanding the data that can be measured by wearable devices (see *PHYSICS TODAY*, September 2022, page 17). As a step in that direction, Wei Gao of Caltech and his colleagues have developed a wireless, electronic bandage, shown here on a gloved hand. Not only can the bioelectronic device measure a patient's metabolic and inflammatory response to a wound, it can also apply anti-inflammatory and antimicrobial treatments and electrically stimulate the site for tissue regeneration.

The durable yet highly elastic bandage is attached to a flexible printed circuit board that directs six embedded sensors. To study the therapeutic benefit of the bandage in a living organism, the researchers examined groups of diabetic rats, some of whom had infected wounds. Over a period of 14 days, the rats with smart bandages healed more quickly and effectively than the control groups. Although more studies are needed before human trials can begin, the researchers suspect the bandage could be particularly beneficial for patients with diabetic ulcers, burns, ulcerations, and other nonhealing wounds. (E. S. Sani et al., *Sci. Adv.* **9**, eadf7388, 2023; image courtesy of Caltech.) —AL

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