

# ***AMERICAN SCIENTIST***

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## THE COVER

*Transmission electron spectroscopy (TEM) images are taken by transmitting a beam of electrons through an ultra-thin sample. Interactions between the sample and the electrons, such as absorption or complex wave interference, create the contrast in the image. Electrons can provide much higher resolution images than light, allowing atomic-level detail. On the cover, a grid used to support the thin samples is shown in red with its one-micrometer-diameter holes in blue, and a small flake of graphene is imaged in green. As Keith A. Jenkins explains in “Graphene in High-Frequency Electronics” (pages 388-397), this single-atom-thick form of carbon has great potential for use in circuits, but scaling up the pieces to usable size has taken some work. Jenkins and his colleagues have created the first electronic device using graphene, a component essential to wireless communication network. (Image courtesy of Zettl Research Group, Lawrence Berkeley National Laboratory and University of California at Berkeley.)*