SPECIAL REPORT

WHAT'S WRONG WITH SCIENCE—AND HOW TO FIX IT

SCIENTIFIC AMERICAN

THE UNSOLVABLE PROBLEM

A journey into some of the strangest ideas in modern math and physics

PLUS

CLICKS, LIES AND VIDEOTAPE

Bracing for the age of fake video PAGE 38

EARTHQUAKES IN THE SKY

A controversial theory for predicting disaster PAGE 44

THE UPSIDE OF RABIES

How the virus helped us better understand the brain PAGE 68

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VOLUME 319, NUMBER 4

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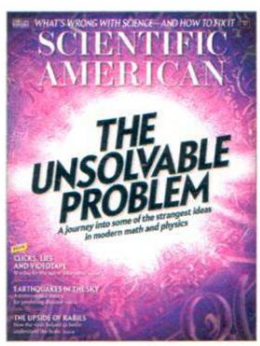
JABIN BOTSFORD Getty Images (flooding in Houston, Tex.)

ON THE COVER

Three mathematicians spent several years and 146 pages proving that the "spectral gap" problem—the question of whether materials have a gap between their lowest energy level and first excited state—is undecidable. To reach this conclusion, the researchers investigated the computer science of Turing machines, the mathematics of bathroom floor tiles and the foundations of quantum physics. **Illustration by Mark Ross Studios.**



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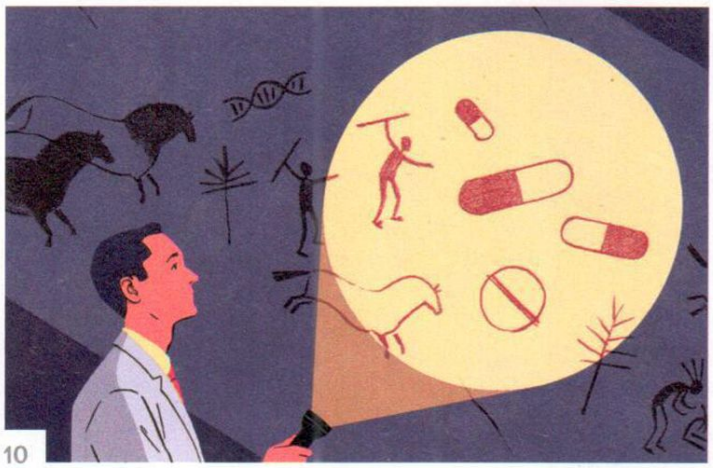

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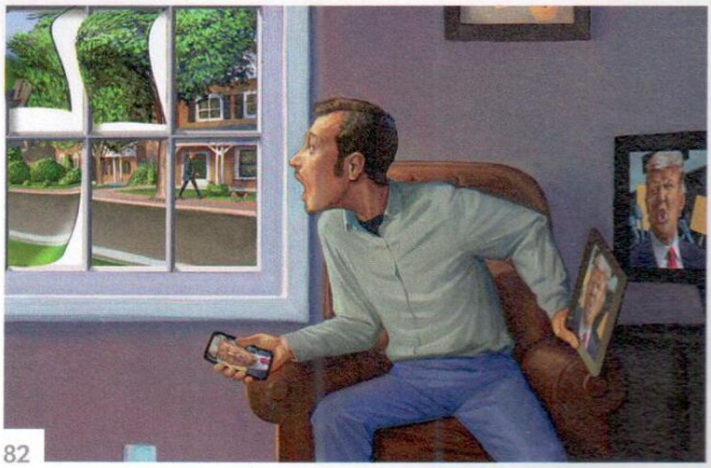
16



82

ON THE WEB

Forbidden Universes
Scientific American reports that the multitude of universes predicted by string theory may not exist after all, a suggestion that has sparked controversy among physicists.
Go to www.ScientificAmerican.com/oct2018/multiverse

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