



PHYSICS TODAY

November 2019 • volume 72, number 11

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FLUID DYNAMICS of wildfires

**New family of
superconductors**

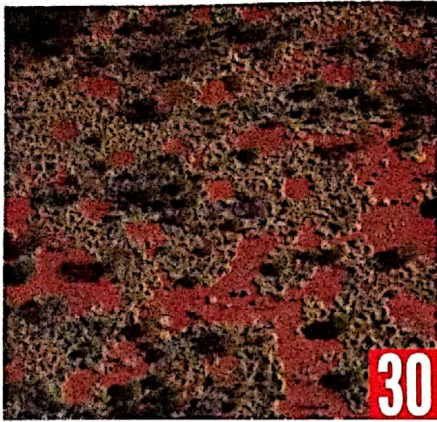
**US–China collaborations
under strain**

**Odd behavior of
chiral fluids**

PHYSICS TODAY

November 2019 | volume 72 number 11

FEATURES



30

30 Vegetation pattern formation: The mechanisms behind the forms

Ehud Meron

A simple principle relating growth to lateral water transport explains the variety of self-organized vegetation patchiness.



38

38 The new science of novae

Koji Mukai and Jennifer L. Sokoloski

The discovery of γ -ray emission from novae has been used not only to better understand sudden brightening events but also to answer some old questions and raise new ones.



46

46 Paul Dirac and the Nobel Prize in Physics

Mats Larsson and Alexander Balatsky

Despite the elegance of Paul Dirac's theoretical work, the Nobel Committee nearly passed him over for the prize—until a timely experiment confirmed one of his predictions.



ON THE COVER: Tens of thousands of wildfires scorch the continental US each year. Predicting their behavior is complicated by their interactions with local winds and with variations in vegetation and terrain. For more on the two-way feedback between a wildfire and the air flow in and around it, turn to the Quick Study on page 70. (Image by iStock.com/noscoo.)

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► Math vs. science

In two recent columns, PHYSICS TODAY's Johanna Miller compares science, which relies on inductive reasoning, with the deductive endeavor of mathematics. She illustrates the difference by exploring Euclid's infamous parallel postulate. You can find all of Miller's columns at physicstoday.org.
physicstoday.org/Nov2019a



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► Physics in Nature

The journal *Nature* turns 150 years old this month. PHYSICS TODAY editor Melinda Baldwin, who wrote a book about *Nature's* history, explores how physicists' desire to publish in the journal has waxed and waned over the years. Its editors and the competition—notably *Physical Review Letters*—have played a big role.
physicstoday.org/Nov2019b



STEMMATIC BY 4U

► Teach energy first?

Most intro college physics courses begin with kinematics and Newton's laws. The University of Kansas (KU) tried teaching energy and conservation laws first in some classes. The KU faculty reports the energy-first students gained more conceptual understanding than did those in force-first classes.
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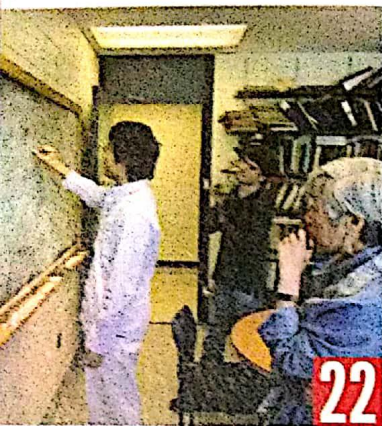


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NOVEMBER 2019 | PHYSICS TODAY 5

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DEPARTMENTS

8 From the editor

10 Readers' forum

Letters

14 Search & discovery

An inexpensive crystal makes a fine quantum time machine
• An odd fluid shows its inner workings • Superconductivity is found in a nickel oxide

22 Issues & events

Trade wars and other geopolitical tensions strain US–China scientific collaborations • Separating signal from noise to solve a nuclear puzzle

53 Books

A Zen-like journey through the mysteries of physics – Timothy M. P. Tait • An encyclopedia of complex systems – Stefani Crabtree • A Linnaean system for the stars – William H. Waller • New books & media

60 New products

Focus on lasers, imaging, and microscopy

67 Obituaries

Mitchell Jay Feigenbaum • Jerry Paul Gollub

70 Quick study

Fluid dynamics of wildfires – Rodman Linn

72 Back scatter

A return trip to the Moon



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