

# PHYSICS TODAY

July 2019 • volume 72, number 7

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## THE SCIENTIFIC LEGACY OF THE APOLLO PROGRAM



Neutron skins and  
neutron stars

Sensors for  
self-driving cars

A piezoelectric  
radio antenna

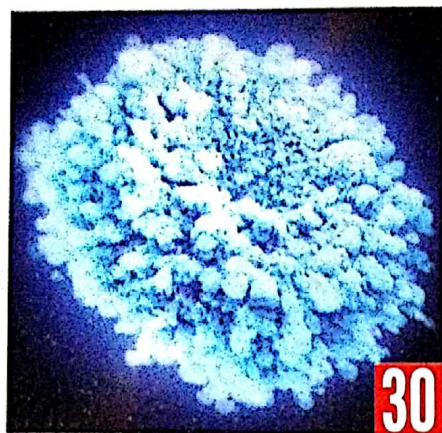
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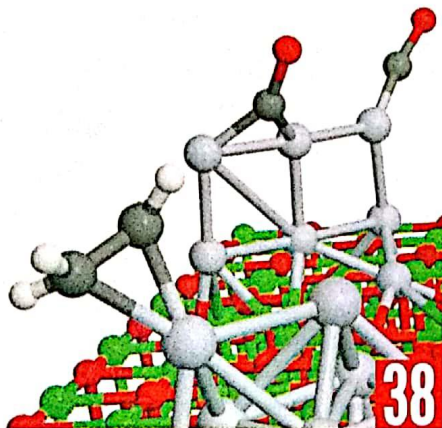
## FEATURES



### 30 Neutron-rich matter in heaven and on Earth

Jorge Piekarewicz and Farrukh J. Fattoyev

Despite a length-scale difference of 18 orders of magnitude, the internal structure of neutron stars and the spatial distribution of neutrons in atomic nuclei are profoundly connected.



### 38 Designing clusters for heterogeneous catalysis

Elisa Jimenez-Izal, Bruce C. Gates, and Anastassia N. Alexandrova

Subnanometer metal clusters offer catalytic properties not possible on bulk or nanoparticle metals.



### 44 The scientific legacy of the Apollo program

Bradley L. Jolliff and Mark S. Robinson

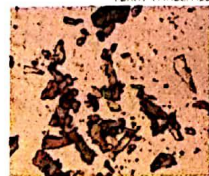
This month marks the 50th anniversary of the *Apollo 11* Moon landing. Together, the six Apollo landings laid the foundation for modern planetary science.



**ON THE COVER:** Astronaut Charles M. Duke Jr collects lunar samples next to the rim of Plum Crater during the first *Apollo 16* extravehicular activity on 21 April 1972. The parked lunar rover sits in the background. On page 44, Brad Jolliff and Mark Robinson discuss the achievements and scientific legacy of the Apollo program. (Photo taken by astronaut John W. Young. Courtesy of NASA.)

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#### ► Melt mystery

In 1896 chemist Emil Fischer produced a crystal that sometimes melts at 65 °C and sometimes at 100 °C. It took 123 years to learn how that could happen. David Adam explains how researchers determined that identical crystalline solids can melt into structurally distinct liquids. [physicstoday.org/Jul2019a](http://physicstoday.org/Jul2019a)



#### ► Serkan Golge

On 29 May physicist and dual US–Turkish citizen Serkan Golge was released from prison in Turkey after a nearly three-year incarceration on charges that the US government and human rights organizations called unsubstantiated. Golge talks to PHYSICS TODAY about his experience and his desire to return to physics research. [physicstoday.org/Jul2019b](http://physicstoday.org/Jul2019b)



#### ► Plan S

If implemented, Plan S would require recipients of research grants from a dozen European national funding agencies to publish work in open-access journals. Dalmeet Singh Chawla details recently announced revisions to the controversial policy, including a delay in adoption until 2021. [physicstoday.org/Jul2019c](http://physicstoday.org/Jul2019c)

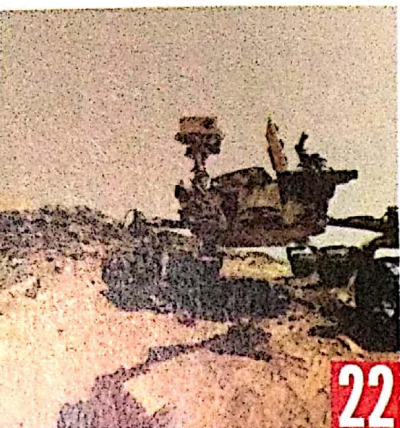
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