

PHYSICS TODAY

August 2019 • volume 72, number 8

A publication of the American Institute of Physics

PHYSICS IN YUGOSLAVIA AND ITS SUCCESSORS

Teleporting quantum
logic gates

Graphene membranes
for desalination

The Great Eclipse
of 1869

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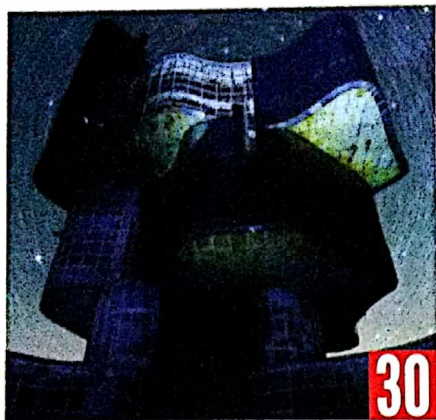
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FEATURES

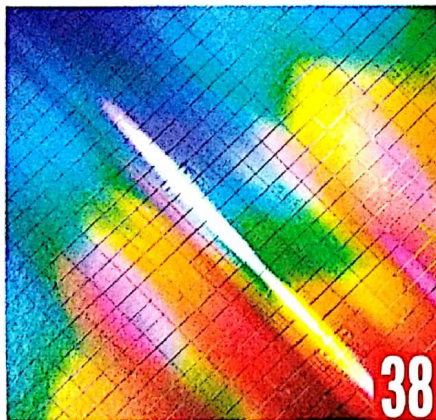


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30 Physics in the former Yugoslavia: From socialist dreams to capitalist realities

Mičo Tatalović and Nenad Jarić Dauenhauer

The homeland of Nikola Tesla and Jožef Stefan saw a rise in physics funding after World War II. Now, after the destruction wrought by the Yugoslav Wars of the 1990s, physics in Yugoslavia's successor states is recovering, albeit unevenly.

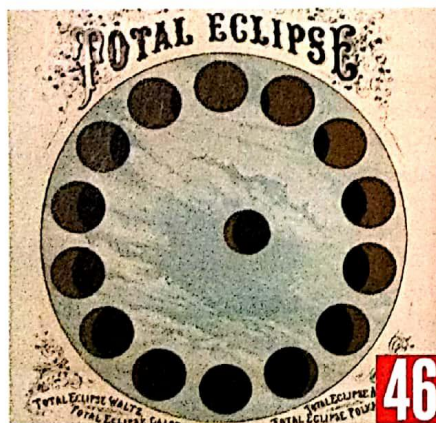


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38 Quantum computing with semiconductor spins

Lieven M. K. Vandersypen and Mark A. Eriksson

Arrays of electrically and magnetically controllable electron-spin qubits can be lithographically fabricated on silicon wafers.



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46 The North American eclipse of 1869

Deborah Kent

A coast-to-coast eclipse on 7 August 1869 gave US astronomers a chance to make their mark on 19th-century astronomy.



ON THE COVER: Designed by architect Živa Baraga and sculptor Janez Lenassi, the *Monument to the Fighters Fallen in the People's Liberation Struggle* (1965) stands in a park in Ilirska Bistrica, Slovenia. Physics flourished in Yugoslavia after World War II but foundered during and after the Yugoslav Wars of the 1990s. For an account of the history and current state of physics in the region, read Mičo Tatalović and Nenad Jarić Dauenhauer's article, which begins on **page 30**. (Photo © Valentin Jeck, commissioned by the Museum of Modern Art, 2016.)

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MEXICAN MATHEMATICAL SOCIETY



► **Graef v. Einstein**
In 1944 Albert Einstein invited Mexican physicist Carlos Graef Fernández to discuss a theory of gravity that was an alternative to general relativity. Gustavo Arciniega chronicles the physicists' debate and explains how it signaled the rising prominence of physics in Mexico.
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MICHELLE WANG



► **Physics Olympiad**
Hundreds of high school students from around the world converged on Tel Aviv, Israel, in July for the 50th International Physics Olympiad. PHYSICS TODAY's Toni Feder covers the overall results and the performance of the US team, whose five competitors finished fifth in combined points this year.
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ATOMIC HERITAGE FOUNDATION



► **Pecher and Sengier**
The history of early US radiation science usually focuses on the making of the atomic bomb. Amand Lucas tells the stories of Charles Pecher and of Edgar Sengier (above right), who contributed in other ways—through advances in nuclear medicine and by supplying the Allies with uranium.
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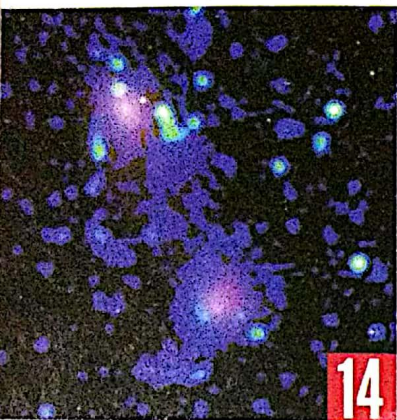
PHYSICS TODAY (ISSN 0031-9228, coden PHTOAD) volume 72, number 8. Published monthly by the American Institute of Physics, 1305 Walt Whitman Rd, Suite 300, Melville, NY 11747-4300. Periodicals postage paid at Huntington Station, NY, and at additional mailing offices. POSTMASTER: Send address changes to PHYSICS TODAY, American Institute of Physics, 1305 Walt Whitman Rd, Suite 300, Melville, NY 11747-4300. Views expressed in PHYSICS TODAY and on its website are those of the authors and not necessarily those of AIP or any of its member societies.



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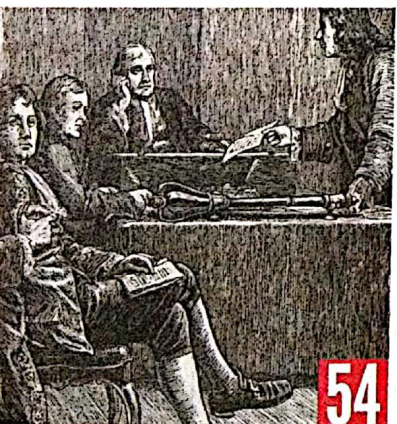
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