What's Happening in the Mathematical Sciences

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Edited by Paul Zorn

Contents

Fermat's Theorem—At Last!

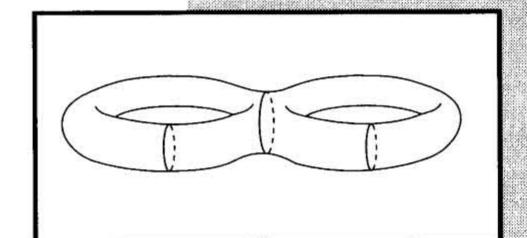
Andrew Wiles has completed the astonishing tour de force that resolves the most famous problem in mathematics. His proof is the realization of a boyhood dream.



A Tale of Two Theories

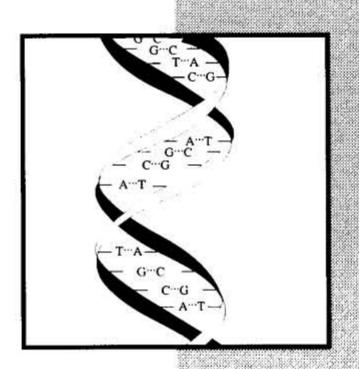
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A breakthrough in theoretical physics has simplified a notoriously difficult theory in 4-dimensional geometry, and given mathematicians a lot to think about.



Computer Science Discovers DNA 26

Will computers of the future be bio-engineered? It's a possibility.



Divide and Conquer

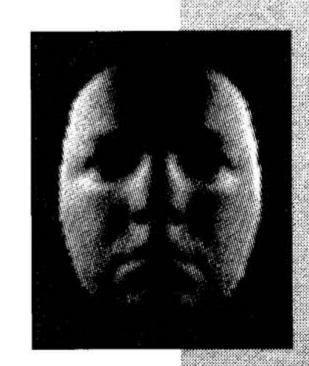
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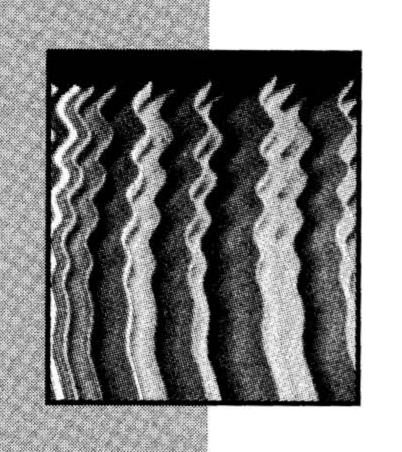
Thomas Nicely set out to study prime numbers that occur in pairs. Along the way, he discovered that Intel's Pentium chip couldn't divide.



The Gentle Art of Control

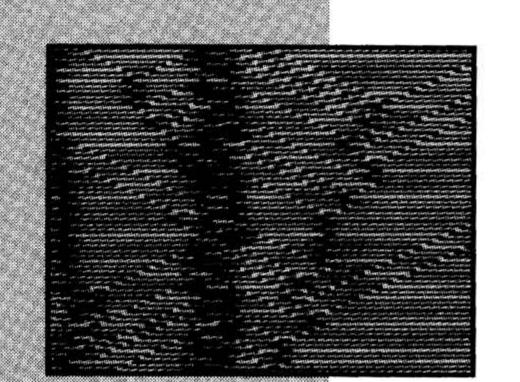
Modern technology relies on mathematical control theory to keep things on an even keel. How do the equations know what to do?





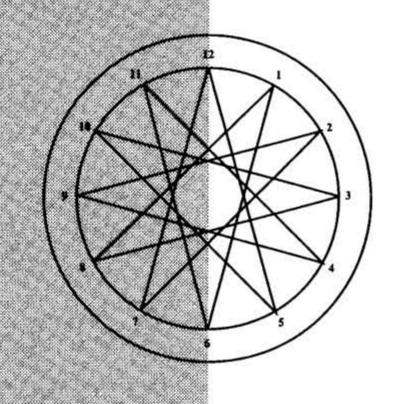


Mathematical techniques, faster computers, and better algorithms are gaining ground in the study of complex fluid flows. For some researchers, computational turbulence is literally a pipe dream.



Cellular Automata Offer New Outlook on Life, the Universe, and Everything

The continuously increasing power of computers has enabled researchers to take a discrete look at the world. Theorists seek to explain the complex patterns that are often seen.

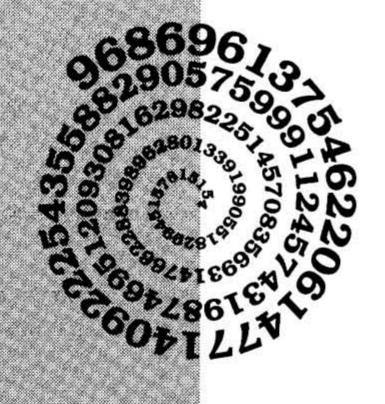


Are Group Theorists Simpleminded?

Researchers are working hard to simplify one of the most complicated proofs in mathematical history—the classification of simple groups.

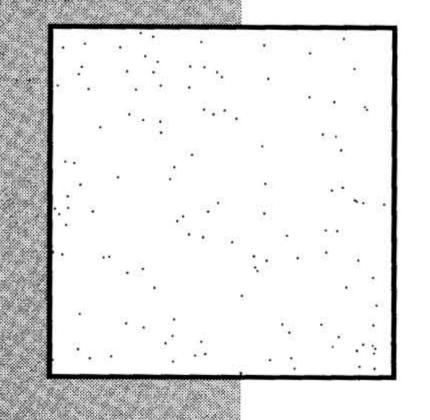
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The Secret Life of Large Numbers 90

A computational challenge in number theory has been met, considerably sooner than the 20,000 years it was expected to take.



In Math We Trust

A theorem about multivariate integration may find a home on Wall Street. You could call it a get-rich-quick scheme.