

482
Lunar reflections

NEWS & COMMENT

- Genetic Testing Set for Takeoff** **464**
Gene Tests: Who's Minding the Store? **465**
- NIH Grants: Peer Review Reforms Get Good Review** **467**
- Cancer Treatment: Will History Repeat for Boron Capture Therapy?** **468**
- Mikulski Boosts NSF Budget** **469**
- Space Science: A Rejuvenated Companion for Ida?** **470**

RESEARCH NEWS

- The Chemistry of Life at the Margins** **471**
- Mathematicians Get an On-Line Fingerprint File** **473**
- Time-Reversed Sound Waves Resonate Among Physicists** **474**
- E. coli Scare Spawns Therapy Search** **475**

PERSPECTIVE

- Searching for the Quark-Gluon Plasma** **480**
G. F. Bertsch

ARTICLES

- Lunar Laser Ranging: A Continuing Legacy of the Apollo Program** **482**
J. O. Dickey, P. L. Bender, J. E. Faller, X X Newhall, R. L. Ricklefs, J. G. Ries, P. J. Shelus, C. Veillet, A. L. Whipple, J. R. Wiant, J. G. Williams, C. F. Yoder
- Mobile Point Defects and Atomic Basis for Structural Transformations of a Crystal Surface** **490**
I.-S. Hwang, S. K. Theiss, J. A. Golovchenko

REPORTS

- Magmatic Vapor Source for Sulfur Dioxide Released During Volcanic Eruptions: Evidence from Mount Pinatubo** **497**
P. J. Wallace and T. M. Gerlach
- Evidence from Paleosols for the Geological Antiquity of Rain Forest** **499**
G. J. Retallack and J. Germán-Heins

DEPARTMENTS

- THIS WEEK IN SCIENCE** **453**
- EDITORIAL** **455**
The Spousal Abuse Problem
- LETTERS** **457**
Biological Diversity and Agriculture: C. R. Margules and K. J. Gaston; K. H. Redford and E. Dinerstein; M. Huston • Omission of References: L. B. McGown and G. Li
- SCIENCESCOPE** **463**
- RANDOM SAMPLES** **476**
Psychology in Crisis? • Professors Have Their Say

- Purification in the Time of Cholera • Germans Try Lowering Their Ozone • Speeding the Search for Protein Structure • The Perils of Babies in Batches • Jump in Science and Engineering Immigrants

- BOOK REVIEWS** **549**
The Soul of the American University, reviewed by J. D. Hoeveler Jr. • *Dinosaur Eggs and Babies*, K. Padian • *From Chemical Philosophy to Theoretical Chemistry*, D. Barkan • *Classification and Cognition*, R. Goldstone • Vignettes • Books Received

- PRODUCTS & MATERIALS** **554**

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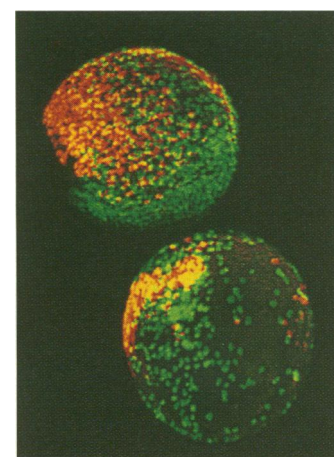
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Motions of atoms on a germanium surface showing the fundamental excitations from crystalline order that bring about transformations of solids. The interstitial-like (lower left) and vacancy-like (middle right) excitations correspond to those responsible for mass trans-

port, many phase transitions, and catalysis. This atomic-scale view of such dynamic phenomena is made possible by the tunneling microscope. See page 490. [Illustration: Jeff Knight]



- Fabrication of Atomic-Scale Structures on Si(001) Surfaces** 502
C. T. Salling and M. G. Lagally
- Fluctuations and Supercoiling of DNA** 506
J. F. Marko and E. D. Siggia
- Engineered Biosynthesis of a Complete Macrolactone in a Heterologous Host** 509
C. M. Kao, L. Katz, C. Khosla
- Creation of Liquid Crystal Waveguides with Scanning Force Microscopy** 512
M. Rüetschi, P. Grütter, J. Fünfschilling, H.-J. Güntherodt
- Measurement of Laser-Plasma Electron Density with a Soft X-ray Laser Deflectometer** 514
D. Ress, L. B. DaSilva, R. A. London, J. E. Trebes, S. Mrowka, R. J. Procassini, T. W. Barbee Jr., D. E. Lehr
- Contribution of Early Cells to the Fate Map of the Zebrafish Gastrula** 517
K. A. Helde, E. T. Wilson, C. J. Cretekos, D. J. Grunwald
- The High-Resolution Crystal Structure of a Parallel-Stranded Guanine Tetraplex** 520
G. Laughlan, A. I. H. Murchie, D. G. Norman, M. H. Moore, P. C. E. Moody, D. M. J. Lilley, B. Luisi
- The Three-Dimensional Crystal Structure of the Catalytic Core of Cellobiohydrolase I from *Trichoderma reesei*** 524
C. Divne, J. Ståhlberg, T. Reinikainen, L. Ruohonen, G. Pettersson, J. K. C. Knowles, T. T. Teeri, T. A. Jones
- Fas and Perforin Pathways as Major Mechanisms of T Cell-Mediated Cytotoxicity** 528
D. Kägi, F. Vignaux, B. Ledermann, K. Bürki, V. Depraetere, S. Nagata, H. Hengartner, P. Golstein
- Interaction of Rac with p67^{phox} and Regulation of Phagocytic NADPH Oxidase Activity** 531
D. Diekmann, A. Abo, C. Johnston, A. W. Segal, A. Hall
- 14-3-3 Protein Homologs Required for the DNA Damage Checkpoint in Fission Yeast** 533
J. C. Ford, F. Al-Khodairy, E. Fotou, K. S. Sheldrick, D. J. F. Griffiths, A. M. Carr
- Association of Polyomavirus Middle Tumor Antigen with 14-3-3 Proteins** 535
D. C. Pallas, H. Fu, L. C. Haehnel, W. Weller, R. J. Collier, T. M. Roberts
- Sensing Starvation: A Homoserine Lactone-Dependent Signaling Pathway in *Escherichia coli*** 537
G. W. Huisman and R. Kolter
- Direct Cortical Representation of Drawing** 540
A. B. Schwartz
- Endothelial NOS and the Blockade of LTP by NOS Inhibitors in Mice Lacking Neuronal NOS** 542
T. J. O'Dell, P. L. Huang, T. M. Dawson, J. L. Dinerman, S. H. Snyder, E. R. Kandel, M. C. Fishman
- TECHNICAL COMMENTS**
- Cortical Reorganization and Deafferentation in Adult Macaques** 546
J. P. Lund, G.-D. Sun, Y. Lamarre; T. P. Pons



517
Cellular fate
in zebrafish

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265 (5171)

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