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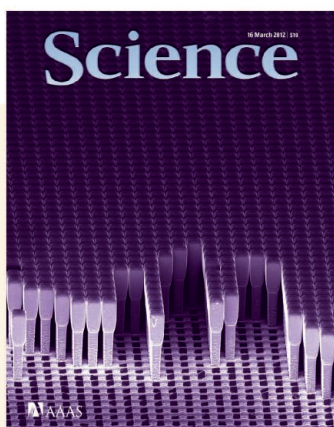


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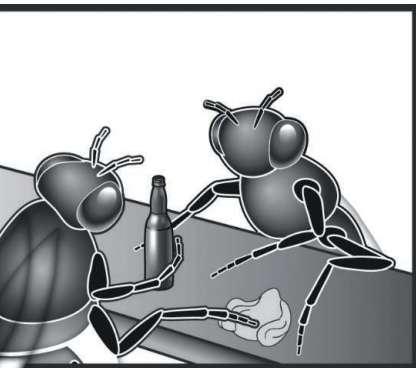
COVER

False-colored scanning electron micrograph of ~8-micrometer-tall germanium crystals, separated by finite gaps, grown onto silicon pillars. In structures like this one, wafer bowing and layer cracking are absent, allowing single-crystal integration of different materials onto a silicon substrate, which serves as a platform for many applications, such as multiple-junction solar cells, x-ray and particle detectors, or power electronic devices. See page 1330.

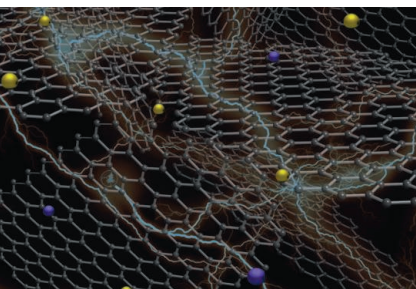
Image: *Claudiu V. Falub, Laboratory for Solid State Physics, Swiss Federal Institute of Technology (ETH-Zürich)*

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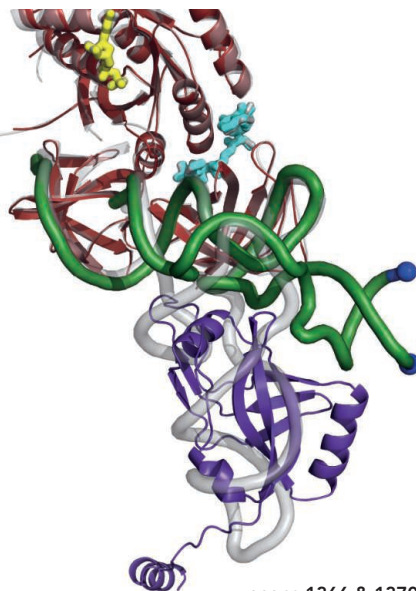
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REVIEW

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J. R. Stewart and C. B. Stringer

BREVIA

- 1322** The Fern Sporangium: A Unique Catapult
X. Noblin et al.
High-speed observations reveal how rapid changes in cell shape powerfully eject fern spores.

REPORTS

- 1323** Ultrastrong Coupling of the Cyclotron Transition of a 2D Electron Gas to a THz Metamaterial
G. Scalari et al.
A system of terahertz resonators coupled to two-dimensional electron gases presents a tunable test bed for the study of two-level physics.
- 1326** Laser Scribing of High-Performance and Flexible Graphene-Based Electrochemical Capacitors
M. F. El-Kady et al.
Infrared laser reduction of graphene oxide creates a strong porous electrode with both high surface area and high conductivity.
>> *Perspective p. 1312*
- 1330** Scaling Hetero-Epitaxy from Layers to Three-Dimensional Crystals
C. V. Falub et al.
A space-filling array of self-limited three-dimensional epitaxial crystals averts wafer bowing, layer cracking, and dislocation propagation.
- 1334** A Change in the Geodynamics of Continental Growth 3 Billion Years Ago
B. Dhuime et al.
Isotopic analysis of zircons reveals the proportion of crust formed and destroyed on continents throughout Earth's history.
- 1336** The Multielectron Ionization Dynamics Underlying Attosecond Strong-Field Spectroscopies
A. E. Boguslavskiy et al.
A spectrometric method tracks the different paths along which strong laser fields pull electrons out of polyatomic molecules.
>> *Perspective p. 1314*
- 1340** The Role of Driving Energy and Delocalized States for Charge Separation in Organic Semiconductors
A. A. Bakulin et al.
Bound excited charge carriers achieve long-range separation by promotion to delocalized band states.

- 1344** Climatic Niche Shifts Are Rare Among Terrestrial Plant Invaders
B. Petitpierre et al.
Distribution data for 50 species confirms that invasive plants usually expand into areas with similar climate characteristics.
- 1348** The Path from β -Carotene to Carlactone, a Strigolactone-Like Plant Hormone
A. Alder et al.
Elucidation of the biosynthetic pathway of a new plant hormone variant that may be useful in agricultural settings is shown.
- 1351** Sexual Deprivation Increases Ethanol Intake in *Drosophila*
G. Shohat-Ophir et al.
In laboratory experiments, male fruit flies respond to lack of sex by increasing alcohol consumption.
>> *Perspective p. 1309; Science Podcast*
- 1355** SNARE Proteins: One to Fuse and Three to Keep the Nascent Fusion Pore Open
L. Shi et al.
Whereas one fusion protein complex can fuse a vesicle with a bilayer, three are needed for efficient content release.
- 1359** ER Cargo Properties Specify a Requirement for COPII Coat Rigidity Mediated by Sec13p
A. Čopič et al.
Membrane curvature of cellular vesicles is generated by altering the symmetry of the cargo and the rigidity of coat proteins.
>> *Perspective p. 1308*
- 1362** Influence of Synaptic Vesicle Position on Release Probability and Exocytotic Fusion Mode
H. Park et al.
Tracking of individual synaptic vesicles reveals that kiss-and-run fusion is concentrated near the center of the synapse.
- 1366** Decoding in the Absence of a Codon by tmRNA and SmpB in the Ribosome
C. Neubauer et al.
- 1370** Structural Basis for the Rescue of Stalled Ribosomes: Structure of YaeJ Bound to the Ribosome
M. G. Gagnon et al.
Two crystal structures show the molecular bases for two pathways that rescue ribosomes that have stalled on defective messenger RNAs.
- 1373** The Transcription Factor c-Maf Controls Touch Receptor Development and Function
H. Wende et al.
A mutation known to cause cataracts also disables a specialized mechanosensory receptor in mice and humans.
- 1376** Niche and Neutral Effects of Acquired Immunity Permit Coexistence of Pneumococcal Serotypes
S. Cobey and M. Lipsitch
The human immune response preserves antigenic variation in a bacterial pathogen.

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A Fine-Scale Chimpanzee Genetic Map from Population Sequencing

A. Auton et al.

Chimpanzees show similar genetic recombination rates as humans but differ in the genomic regions involved.

10.1126/science.1216872

Ribosome Profiling Shows That miR-430 Reduces Translation Before Causing mRNA Decay in Zebrafish

A. A. Bazzini et al.

MicroRNAs act to repress their messenger RNA targets first by blocking translation initiation and then through degradation.

10.1126/science.1215704

ESCR-III Governs the Aurora B–Mediated Abscission Checkpoint Through CHMP4C

J. G. Carlton et al.

The membrane scission and cytokinesis ESCRT machinery may help to protect against genetic damage.

10.1126/science.1217180

The Coexistence of Superconductivity and Topological Order in the Bi₂Se₃ Thin Films

M.-X. Wang et al.

A thin layer of a topological insulator grown on the surface of a superconductor is shown to acquire a superconducting gap.

10.1126/science.1216466

TECHNICALCOMMENTS

Comment on “Widespread RNA and DNA Sequence Differences in the Human Transcriptome”

C. L. Kleinman and J. Majewski

Full text at www.sciencemag.org/cgi/content/ful/335/6074/1302-c

Comment on “Widespread RNA and DNA Sequence Differences in the Human Transcriptome”

J. K. Pickrell et al.

Full text at www.sciencemag.org/cgi/content/ful/335/6074/1302-d

Comment on “Widespread RNA and DNA Sequence Differences in the Human Transcriptome”

W. Lin et al.

Full text at www.sciencemag.org/cgi/content/ful/335/6074/1302-e

Response to Comments on “Widespread RNA and DNA Sequence Differences in the Human Transcriptome”

M. Li et al.

Full text at www.sciencemag.org/cgi/content/ful/335/6074/1302-f

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Highlights From Our Daily News Coverage

Some Corals May Adapt to Warmer Seas

A study raises hopes that some species may be more resilient than previously thought.

http://scim.ag/Corals_Seas

How to Say ‘In Your Face’ Like a Penguin

Triumph displays advertise a winner’s prowess—and neighbors take notice.

http://scim.ag/Penguins_Triumph

To Boldly Go Where No Bee Has Gone

A genetic study of bees suggests that similar genes confer novelty seeking in insects and humans.

<http://scim.ag/Scout-Bees>

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

13 March issue: <http://scim.ag/ss031312>

RESEARCH ARTICLE: Regulation of the EGF Transcriptional Response by Endocytic Sorting

B. Brankatschk et al.

The transcriptional response to EGFR activation is rapidly initiated after receptor stimulation before degradative sorting occurs.

RESEARCH RESOURCE: Proteome-Wide Discovery of Evolutionary Conserved Sequences in Disordered Regions

A. N. Nguyen Ba et al.

A statistical analysis method can identify short, functionally important linear motifs in disordered regions of proteins.

PERSPECTIVE: From Sulfenylation to Sulfhydration—What a Thiolate Needs to Tolerate

T. Finkel

New techniques have revealed the dynamics of posttranslational modifications triggered by redox signaling that target cysteine residues.

E-LETTERS: Comment and Response on “Ras and Rap GAP Function and GTPase Sequestration in Plexin-Mediated Cell Signaling Mechanisms”

Negishi and Buck discuss the work of Wang *et al.* in the context of other studies of the mechanisms by which plexins transduce signals.

SCIENCE TRANSLATIONAL MEDICINE

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Integrating Medicine and Science

14 March issue: <http://scim.ag/stm031412>

STATE OF THE ART REVIEW: Treating Human Autoimmunity—Current Practice and Future Prospects

M. D. Rosenblum et al.

Recent advances in understanding immune regulation set the stage for new targeted therapies for autoimmune disease.

RESEARCH ARTICLE: A Model for Personalized in Vivo Analysis of Human Immune Responsiveness

H. Kalscheuer et al.

Personalized humanized mice can model intrinsic defects in human immune disease.

RESEARCH ARTICLE: Data-Driven Prediction of Drug Effects and Interactions

N. P. Tatonetti et al.

Two new databases permit identification of drug targets, prediction of drug indications, and discovery of drug interactions.

RESEARCH ARTICLE: Structure-Guided Design of a High-Affinity Platelet Integrin $\alpha_{IIb}\beta_3$ Receptor Antagonist That Disrupts Mg²⁺ Binding to the MIDAS

J. Zhu et al.

A new integrin-directed drug blocks platelet aggregation and may have fewer side effects.

SCIENCE CAREERS

www.sciencemag.org/career_magazine

Free Career Resources for Scientists

Data Deluge Drives Demand

E. Wayman

More data means more demand for people who can use supercomputers.

<http://scim.ag/SupercomputerJobs>

Tooling Up: Customize Your Training

D. Jensen

The extra skills you need to get attention from industry do not have to cost an arm and a leg.

http://scim.ag/TU_CustomizeTraining

In Person: Career GPS

E. Shkolnik et al.

Our self-organized peer-mentoring group changed our lives for the better.

<http://scim.ag/InPersonGPS>

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Science Policy News and Analysis

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335 (6074)

Science **335** (6074), 1275-1385.

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