



COVER

Finite element method simulation of an *Arabidopsis* shoot apical meristem where two cells have been laser-ablated. The color map indicates the von Mises stress (a measure of distortional stress); the white lines mark the directions of maximal principal stress, which are circumferential around the ablated cells, in agreement with experimentally determined microtubule orientations. See page 1650.

Image: Pawel Krupinski/Lund University

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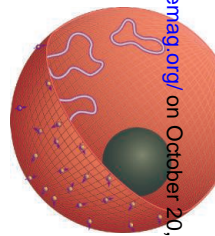
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R. A. Cooper et al.

High magnetic fields can strip away the superconducting regime of a cuprate superconductor, revealing the presence of an enigmatic quantum critical point.

10.1126/science.1165015

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Femtosecond XANES Study of the Light-Induced Spin Crossover Dynamics in an Iron(II) Complex

Ch. Bressler et al.

X-ray absorption spectroscopy resolves the dynamics of spin-state interconversions, which take place in less than a picosecond, in a well-studied class of iron compounds.

10.1126/science.1165733

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Chromatin-Associated Periodicity in Genetic Variation Downstream of Transcriptional Start Sites

S. Sasaki et al.

The periodic wrapping of DNA around nucleosomes in chromatin determines a periodic variation in mutation type and frequency around transcription start sites in a fish.

10.1126/science.1163183

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The Sphingolipid Transporter Spns2 Functions in Migration of Zebrafish Myocardial Precursors

A. Kawahara et al.

Normal heart development in zebrafish requires the function of a lipid transporter in a membrane surrounding the yolk, a tissue outside of the embryo proper.

10.1126/science.1167449

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A Single Gene Causes Both Male Sterility and Segregation Distortion in *Drosophila* Hybrids

N. Phadnis and H. A. Orr

A *Drosophila* gene that causes sterility in the offspring of two species and may be important for speciation causes increased transmission of itself to progeny.

10.1126/science.1163934

GENETICS

A Mouse Speciation Gene Encodes a Meiotic Histone H3 Methyltransferase

O. Mihola et al.

A gene responsible for sterility in the offspring of two mouse species, and therefore important in speciation, regulates gene expression via methylation in chromatin.

10.1126/science.1163601

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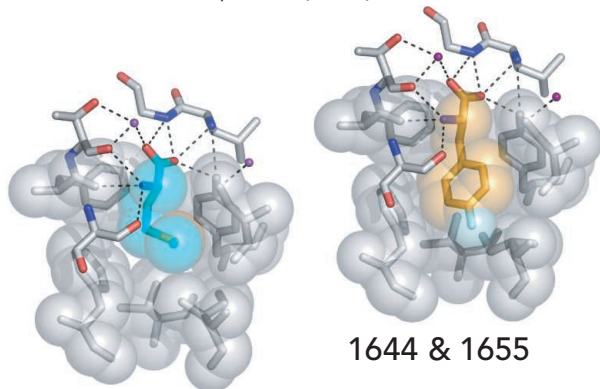
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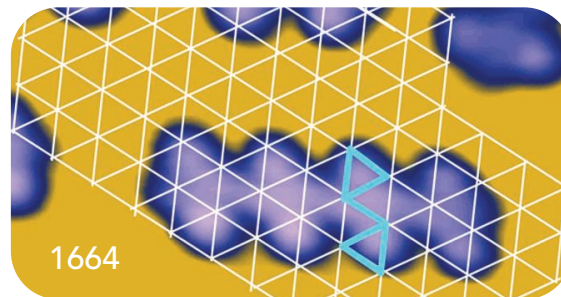
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SCIENCE (ISSN 0036-8075) is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005. Periodicals Mail postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Copyright © 2008 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership and subscription (51 issues): \$144 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$770; Foreign postage extra: Mexico, Caribbean (surface mail) \$55; other countries (air assist delivery) \$85. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254 88122. Publications Mail Agreement Number 1069624. SCIENCE is printed on 30 percent post-consumer recycled paper. **Printed in the U.S.A.**

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A. M. VanHook

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RESEARCH ARTICLE: Analysis of Metagene Portraits Reveals Distinct Transitions During Kidney Organogenesis

I. Tsigelny, V. Kouznetsova, D. E. Sweeney, W. Wu, K. T. Bush, S. K. Nigam

Grouping microarray expression data into metagenes, followed by organization of these gene clusters into self-organizing maps, reveals distinct stages of kidney organogenesis.

REVIEW: De Novo Organ Formation from Differentiated Cells—Root Nodule Organogenesis

M. Crespi and F. Frugier

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PERSPECTIVE: Intercellular Peptide Signals Regulate Plant Meristematic Cell Fate Decisions

J. E. Gray, S. Casson, L. Hunt

By controlling stem cell fate, secreted peptides control the formation of many plant cell types.



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322 (5908)

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