A hexabenzocoronene molecule (diameter: 1.4 nanometers) imaged by noncontact atomic force microscopy using a microscope tip terminated with a single carbon monoxide molecule. The carbon-carbon bonds in the imaged molecule appear with different contrast and apparent lengths. Based on these disparities, the bond orders and lengths of the individual bonds can be distinguished. See page 1326.

Image: Leo Gross, IBM Research - Zurich
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1313 Adaptive Prolonged Postreproductive Life Span in Killer Whales
E. A. Foster et al.
Killer whale mothers continue to help their adult male offspring to survive long after ceasing reproduction.
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Laser-based photoemission spectroscopy is used to map out the pairing gap of an iron-based superconductor.

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Two halves of a split ultracold gas of rubidium atoms retain memory of the initial state for an extended time.

1322 Oxidative Aliphatic C-H Fluorination with Fluoride Ion Catalyzed by a Manganese Porphyrin
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A catalyst introduces fluorine in a convenient, mild fashion to a range of relatively inert hydrocarbons.

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Images detected with an atomic force microscope tip decorated with a carbon monoxide molecule could distinguish Pauling bond order.
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N. E. Young et al.
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1333 Initiation of Cell Wall Pattern by a Rho- and Microtubule-Driven Symmetry Breaking
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A genetic locus containing three protein-coding genes underlies the system causing hybrid sterility among rice species.

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Yeast genes involved in the dimorphic switch between cell budding and filamentous growth types are identified.

1357 A Critical Period for Social Experience–Dependent Oligodendrocyte Maturation and Myelination
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In mice, early social experience regulates prefrontal cortex myelination that is essential for normal cognitive development.

1360 Active DNA Demethylation in Plant Companion Cells Reinforces Transposon Methylation in Gametes
C. A. Ibarra et al.
Activation of transposable elements in the companion cells of plant gametes can silence transposable elements in the gamete.
Focal adhesions and invadopodia.

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Dynamics of DNA Supercoils
M. T. J. van Loenhout et al.
The movement of intertwined loops, or plectonemes, along a twisted DNA molecule was visualized. 10.1126/science.1225810

Cilia at the Node of Mouse Embryos Sense Fluid Flow for Left-Right Determination via Pkd2
S. Yoshiba et al.
A Ca²⁺ channel implicated in polycystic kidney disease helps to establish the left-right body axis of the mammalian embryo. 10.1126/science.1222538

Shared Synaptic Pathophysiology in Syndromic and Nonsyndromic Rodent Models of Autism
S. J. Baudouin et al.
Deficiency or mutation of the postsynaptic adhesion protein Neuroligin-3 may contribute to cognitive defects in autism. 10.1126/science.1224159

A Genomic Regulatory Element That Directs Assembly and Function of Immune-Specific AP-1-IRF Complexes
E. Glasmacher et al.
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M. F. Freeman et al.
Large toxins that comprise many modified Ω-amino acids are ribosomally synthesized and then derivatized. 10.1126/science.1226121

TECHNICAL COMMENTS

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J. Fyke and M. Eby
Full text at www.sciencemag.org/cgi/content/full/337/6100/1294-b

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Full text at www.sciencemag.org/cgi/content/full/337/6100/1294-c
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