CONTENTS

14 AUGUST 2015 • VOLUME 349 • ISSUE 6249

704 The future of carbon transistors

NEWS

IN BRIEF
672 Roundup of the week's news

IN DEPTH
674 IRAN’S ATOMIC CZAR DESCRIBES THE ART OF THE DEAL
Ali Akbar Salehi tells Science how he helped seal the Iran nuclear agreement
By R. Stone

676 REPORT SETS NEW GOALS FOR U.S. ANTARCTIC PROGRAM
Committee pushes study of ice loss, genomics, and radiation from the beginning of the universe By C. Gramling

677 MODIFIED YEAST PRODUCE OPIATES FROM SUGAR
Engineered microbes raise hopes for better medicines and concerns about illicit drugs By R. F. Service
► REPORT BY S. GALANIE ET AL.
10.1126/science.aac9373

678 RUSSIAN CLAIM HEATS UP BATTLE TO CONTROL ARCTIC SEA FLOOR
Nations offer new geological data to back overlapping bids to expand marine territory claims By L. Laursen

FEATURE
679 MASHCO PIRO TRIBE EMERGES FROM ISOLATION IN PERU
Crisis sparks debate about whether to make official contact or leave isolated tribespeople alone By A. Lawler

680 THE LITTLEST FARMHANDS
Scientists are discovering thousands of microbes that help plants survive and thrive. Could these symbionts help farmers as well? By J. de Vrieze

INSIGHTS

PERSPECTIVES

683 WATCHING WATER:
FROM SKY OR STREAM?
By J. S. Famiglietti et al.

685 TIME FOR IN SITU RENAISSANCE
By B. M. Fedele et al.

687 HOW MOUNTAINS GET MADE
Observations of crustal deformation constrain models of mountain formation By M. D. Long
► REPORT P. 720

688 MARMOSET KIDS ACTUALLY LISTEN
Humans and other vertebrates may share a developmental program for vocal learning
By D. Margoliash and O. Tchernichovski
► REPORT P. 734

690 ASTROCYTES TELL NEURONS WHEN TO LISTEN UP
Astrocytes ensure communication between neurons of the same circuit
By A. H. Gittis and D. J. Brasier
► REPORT P. 730

691 HAS THERE BEEN A HIATUS?
Internal climate variability masks climate-warming trends
By K. E. Trenberth

693 EBOLA VIRUS VACCINES—PREPARING FOR THE UNEXPECTED
Many lives might have been saved if clinical studies of Ebola virus vaccines had been done earlier
By H.-D. Klenk and S. Becker
► REPORT P. 739

694 TUMOR ANGIOGENESIS, FROM FOE TO FRIEND
Treatments that normalize or even promote blood vessel growth may enhance drug delivery to tumors
By L. B. Rivera and G. Bergers

696 THE ON-RAMP TO THE ALL-OPTICAL QUANTUM INFORMATION PROCESSING HIGHWAY
An optical waveguide circuit can be flexibly programmed with near-perfect fidelity By P. P. Rohde and J. P. Dowling
► RESEARCH ARTICLE P. 711

BOOKS ET AL.
697 GODS OF THE MORNING
By J. Lister-Kaye, reviewed by C. Kemp

697 THE MATTER FACTORY
By P. J. T. Morris

698 THE VILLAGE EFFECT
By S. Pinker, reviewed by B. Wellman

LETTERS
699 PARKS FOR SCIENCE, SCIENCE FOR PARKS
By W. F. Laurance
RESEARCH

IN BRIEF

701 From Science and other journals

REVIEW

704 DEVICE TECHNOLOGY
Nanomaterials in transistors: From high-performance to thin-film applications A. D. Franklin
REVIEW SUMMARY: FOR FULL TEXT: dx.doi.org/10.1126/science.aab253

RESEARCH ARTICLES

705 HIV-1 VACCINES
Diversion of HIV-1 vaccine-induced immunity by gp41-microbiota cross-reactive antibodies W. B. Williams et al.
RESEARCH ARTICLE SUMMARY: FOR FULL TEXT: dx.doi.org/10.1126/science.aab253

706 PALEOCEANOGRAPHY
A warm and poorly ventilated deep Arctic Mediterranean during the last glacial period D. J. R. Thornalley et al.

711 QUANTUM OPTICS
Universal linear optics J. Carolan et al.
▶ PERSPECTIVE P. 696

REPORTS

716 MAGNETISM
Imaging and control of ferromagnetism in LaMnO₃/SrTiO₃ heterostructures X. R. Wang et al.

720 GEOPHYSICS
Layered deformation in the Taiwan orogen T-Y. Huang et al.
▶ PERSPECTIVE P. 687

723 2D MATERIALS
Observation of tunable band gap and anisotropic Dirac semimetal state in black phosphorus J. Kim et al.

726 APPLIED OPTICS
Voltage-tunable circular photogalvanic effect in silicon nanowires S. Dhara et al.

730 GLIAL CELL SIGNALING
Circuit-specific signaling in astrocyte-neuron networks in basal ganglia pathways R. Martin et al.
▶ PERSPECTIVE P. 690

734 LANGUAGE DEVELOPMENT
The developmental dynamics of marmoset monkey vocal production D. Y. Takahashi et al.
▶ PERSPECTIVE P. 688; PODCAST

739 EBOLA VACCINE
VSV-EBOV rapidly protects macaques against infection with the 2014/15 Ebola virus outbreak strain A. Marzi et al.
▶ PERSPECTIVE P. 693

742 DNA REPAIR
Mus81 and converging forks limit the mutagenicity of replication fork breakage R. Mayle et al.

747 EVOLUTION
Fruit flies diversify their offspring in response to parasite infection N. D. Singh et al.

ON THE COVER

Infant common marmoset (Callithrix jacchus) in the act of vocalizing. For decades, it has been assumed that monkeys are born with adult-sounding vocalizations. However, Takahashi et al. report that marmoset infant vocalizations, like those of human babies, change substantially in early life and are influenced by parental interaction. See pages 688 and 734.

Photo: Emmanuel Keller