SPECIAL SECTION

Exoplanets

INTRODUCTION
565 Alien Worlds Galore

NEWS
566 Gallery of Planet Hunters
570 ... And a Glossary of Their Quarry

>> Science Podcast

REVIEWS
572 Observed Properties of Extrasolar Planets
A. W. Howard
577 Exoplanet Habitability
S. Seager

>> News story p. 542; Report p. 587; Planet Hunters slideshow; and more at www.sciencemag.org/special/exoplanets

EDITORIAL
525 Is Any Science Safe?
Kenneth Prewitt

NEWS OF THE WEEK
530 A roundup of the week’s top stories

NEWS & ANALYSIS
534 Bill Would Set New Rules for Choosing NSF Grants
535 Research in Limbo as Harvard Moves to Close Center
536 Bill and Melinda Gates Talk Science
539 Scientists Clash Swords Over Future of GM Food Crops in India
540 Hansen’s Retirement From NASA Spurs Look at His Legacy

NEWS FOCUS
542 Mr. Borucki’s Lonely Road to the Light
546 Taking the Pulse of a Ravaged Ocean

LETTERS
548 Geoengineering: Guidance Exists
P. S. Corden
549 Life in Science: The Legend of Owen

BOOKS ET AL.
550 Surfaces and Essences
D. Hofstadter and E. Sander, reviewed by K. J. Holyoak
551 Faking It
M. Fineman, curator;
Faking It
M. Fineman

ON THE WEB THIS WEEK

>> Special Issue Slideshow
Check out a gallery of planet hunters.

>> Find More Online
Check out Science Express, our podcast, videos, daily news, our research journals, and Science Careers at www.sciencemag.org.

COVER
Stylized comparison of the inner solar system (top) and Kepler-62 (bottom), a five-planet system about 1200 light-years away. Like our solar system, Kepler-62 hosts two planets in its habitable zone (depicted in green), the region around a star where a planet could conceivably maintain liquid water on its surface. The special section beginning on page 565 summarizes what we currently know about extrasolar planets.

Illustration: NASA/Jet Propulsion Laboratory–Caltech/T. Pyle

DEPARTMENTS
523 This Week in Science
526 Editors’ Choice
528 Science Staff
643 New Products
644 Science Careers

Published by AAAS
PERSPECTIVES

554 Recombinational Logic
Y. Benenson
>> Report p. 599

555 Seeing Gravitational Waves
M. M. Kasiwal

556 Tracking Marine Pollution
J. E. Elliott and K. H. Elliott

558 Silencing a Metabolic Oncogene
J. Kim and R. J. DeBerardinis
>> Reports pp. 622 and 626

559 Unconventional Secretion, Unconventional Solutions
M. Zhang and R. Schekman

561 Obey the Peptide Assembly Rules
M. S. Ardejani and B. P. Orner
>> Report p. 595

562 As Good as Chocolate
K. Palczewski and P. D. Riser
>> Reports pp. 610 and 615

RESEARCH ARTICLE

583 Emergence and Frustration of Magnetism with Variable-Range Interactions in a Quantum Simulator
R. Islam et al.
Coulomb interactions in a system of 16 trapped ions are used to simulate magnetism with varying degrees of frustration.

599 Amplifying Genetic Logic Gates
J. Bonnet et al.
A genetic circuit architecture resembling a transistor can be engineered into individual live cells.
>> Perspective p. 554

603 Controlled Flight of a Biologically Inspired, Insect-Scale Robot
K. Y. Ma et al.
A fly-scale, flapping-wing robot has been fabricated and can be controlled to perform unconstrained flight maneuvers.

607 3D Reconstruction of the Source and Scale of Buried Young Flood Channels on Mars
G. A. Morgan et al.
Radar data taken from orbit reveal the complex morphology of buried flood channels in a young region of Mars.

610 Structural Basis for Molecular Recognition at Serotonin Receptors
C. Wang et al.
Structures of serotonin receptor family members in complex with the fungal alkaloid ergot offer clues for drug designers.
>> Perspective p. 562

619 R-Loop Stabilization Represses Antisense Transcription at the Arabidopsis FLC Locus
Q. Sun et al.
A homeodomain protein limits expression of antisense transcripts involved in flowering time control.

622 Targeted Inhibition of Mutant IDH2 in Leukemia Cells Induces Cellular Differentiation
F. Wang et al.
An inhibitor of mutant IDH1 Delays Growth and Promotes Differentiation of Glioma Cells
D. Rohle et al.
A small molecule that inhibits a mutant enzyme in tumors slows malignant growth by inducing cancer cell differentiation.
>> Perspective p. 558

REPORTS

587 Kepler-62: A Five-Planet System with Planets of 1.4 and 1.6 Earth Radii in the Habitable Zone
W. J. Borucki et al.
The Kepler mission detected a five-planet system with two small planets in the habitable zone of a star lighter than the Sun.
>> News story p. 542; Exoplanets section p. 565

591 Complex N-Heterocycle Synthesis via Iron-Catalyzed, Direct C-H Bond Amination
E. T. Hennessy and T. A. Betley
An iron catalyst facilitates carbon–nitrogen bond formation in previously unreactive substrates.

595 Self-Assembling Cages from Coiled-Coil Peptide Modules
J. M. Fletcher et al.
Hexagonal networks form from heterodimeric and homotrimeric coiled coils and create ~100-nanometer-diameter cages.
>> Perspective p. 561

604 Disparate Individual Fates Compose Robust CD8+ T Cell Immunity
V. R. Buchholz et al.
The single-cell dynamics of cytotoxic T cells respond to a bacterial infection are analyzed in mice.

606 Heterogeneous Differentiation Patterns of Individual CD8+ T Cells
C. Gerlich et al.
The single-cell dynamics of cytotoxic T cells respond to a bacterial infection are analyzed in mice.

608 Neural Decoding of Visual Imagery During Sleep
T. Horikawa et al.
Machine-learning models can predict specific visual dream contents from brain activity measurement alone.