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COVER

Pulsars in our Galaxy newly discovered by the Fermi Gamma-ray Space Telescope, launched in June 2008. The objects emit broad gamma-ray beams that have enabled Fermi to locate a never-before-seen population. Fermi has also seen pulsars with millisecond periods and has detected at least one globular cluster (center left). See the Research Article and two Reports beginning on page 840.

Image: NASA/U.S. Department of Energy/Fermi LAT Collaboration/Sonoma State University/Aurore Simonnet

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Local Adaptation of Bacteriophages to Their Bacterial Hosts in Soil
M. Vos et al.
A host-parasite system indicates how ecological and evolutionary mechanisms shape the distribution of microbes in soil.

Lysine Acetylation Targets Protein Complexes and Co-Regulates Major Cellular Functions
C. Choudhary et al.
A proteomic-scale analysis of protein acetylation suggests that it is an important biological regulatory mechanism.

Detection of 16 Gamma-Ray Pulsars Through Blind Frequency Searches Using the Fermi LAT
A. A. Abdo et al.
Most of these identifications correspond to gamma-ray sources long suspected to be pulsars.

Detection of High-Energy Gamma-Ray Emission from the Globular Cluster 47 Tucanae with Fermi
A. A. Abdo et al.
The Fermi Large Area Telescope reveals up to 60 millisecond pulsars in this globular cluster, twice as many as predicted by radio observations.

A Population of Gamma-Ray Millisecond Pulsars Seen with the Fermi Large Area Telescope
A. A. Abdo et al.
These objects appear to share a common emission mechanism with standard gamma-ray pulsars.

Impact of Anode Microstructure on Solid Oxide Fuel Cells
T. Suzuki et al.
A porous form of the oxide anode of a fuel cell with a zirconia-based electrolyte reduces its operating temperature.

Docking in Metal-Organic Frameworks
Q. Li et al.
Guest molecules bind site-specifically in macrocycles incorporated into the ligands of a metal organic framework solid.

Fire As an Engineering Tool of Early Modern Humans
K. S. Brown et al.
Early modern humans had used fire to improve the fracturing of silcrete in making tools in South Africa by 72,000 years ago.

Mesotocin and Nonapeptide Receptors Promote Estrildid Flocking Behavior
J. L. Goodson et al.
Oxytocin and oxytocin-like receptors control group size preference in a songbird, suggesting an evolutionarily conserved role in social affiliation.

The Transcriptional Repressor DEC2 Regulates Sleep Length in Mammals
Y. He et al.
Some people are genetically determined to get by with less sleep than other people.

Mechanistic Analysis of a Dynamin Effector
L. L. Lackner et al.
During mitochondrial division, a pair of proteins interacts to promote membrane scission.

ER Stress Controls Iron Metabolism Through Induction of Hepcidin
C. Vecchi et al.
Stress signals in the endoplasmic reticulum activate a transcription factor that induces expression of an iron-regulatory hormone.

Capuchin Monkeys Display Affiliation Toward Humans Who Imitate Them
A. Paukner et al.
The chameleon effect also operates in monkeys.

Mindblind Eyes: An Absence of Spontaneous Theory of Mind in Asperger Syndrome
A. Senju et al.
Asperger syndrome individuals do not pass a nonverbal false-belief test.

Mindblind Eyes: An Absence of Spontaneous Theory of Mind in Asperger Syndrome
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Asperger syndrome individuals do not pass a nonverbal false-belief test.
Scientists investigate mysterious incident

Whale Stranding: Sonar or Lunar?

Researchers investigate mysterious incident

Bird Flu Virus a Possible Trigger for Parkinson's

Two Kaimanawa mares hang out.

Highlights From Our Daily News Coverage

Horses Get By With a Little Help
From Their Friends

Bird Flu Virus a Possible Trigger for Parkinson’s Loss of dopamine neurons is tied to H5N1 influenza virus infection in mice.

Whale Stranding: Sonar or Lunar? Researchers investigate mysterious incident off Hawaii 5 years ago.

N. Kröger
An Acidic Matrix Protein, Pif, Is a Key Macromolecule for Nacre Formation M. Suzuki et al.
A matrix protein is identified that regulates nacre formation in the Japanese pearl oyster.

Evidence for Obliquity Forcing of Glacial Termination II R. N. Drysdale et al.
Marine records suggest that the early onset of the penultimate deglaciation was due to changes in Earth’s obliquity.

Formation of ArF from LpDAr(β): Catalytic Conversion of Aryl Triflates to Aryl Fluorides D. A. Watson et al.
A catalyst enables versatile carbon-fluorine bond formation using simple fluoride salts.

Perspective: New Complexity in Differentiating Stem Cells Toward Hepatic and Pancreatic Fates S. S. Huppert and M. A. Magnuson Programming of the liver and pancreas is controlled by a dynamic, temporally coordinated signaling network.

In Person: The Pursuit of Happiness H. Akil The joy of playing with her granddaughter tickles the neurons of a noted neuroscientist.

Visa Delays Put Science Careers at Risk L. Chiu “Administrative review” is leaving some foreign scientists stranded overseas.

Neuronal PKD in C. elegans.

Two Kaimanawa mares hang out.

Free Career Resources for Scientists

Top 10 Tips to Maximize Your Mentoring J. Lakoski Cultivating and nurturing mentoring relationships is an essential career skill.

S. S. Huppert and M. A. Magnuson Stem Cells Toward Hepatic and Pancreatic Fates PERSPECTIVE: New Complexity in Differentiating Stem Cells Toward Hepatic and Pancreatic Fates

A mutant CD3ε subunit that cannot change conformation in response to ligand binding exerts dominant-negative inhibition of T cell responses.

D. B. Arnold Delivery of proteins to axons or dendrites depends on interactions between molecular motors and the cytoskeleton.

S. S. Huppert and M. A. Magnuson Programming of the liver and pancreas is controlled by a dynamic, temporally coordinated signaling network.


Formation of ArF from LpDAr(β): Catalytic Conversion of Aryl Triflates to Aryl Fluorides

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