

Perspective by Vaida). Fatty acids are ubiquitous in the environment, and their photochemical processing could have a substantial impact on local ozone and particle formation. —HJS

Science, this issue p. 699;
see also p. 650

ECONOMIC POLICY

Programs that buffer a financial shock work

For people without a safety net of social and financial resources, a shock, such as medical expenses not covered by insurance, can be the first step in a downward spiral toward homelessness and morbidity. Evans *et al.* evaluate the effectiveness and cost of a program in Chicago that provides temporary financial assistance with the aim of enabling individuals to stay in their homes and out of homeless shelters. They find that one-time payments of up to \$1500 greatly reduce the likelihood of homelessness. The estimated economic benefits exceed the estimated costs, with immeasurable psychic and physical benefits. —GJC

Science, this issue p. 694

SOFT ELECTRONICS

Soft and still responsive

Transparent touch screens, from large-panel interactive information maps to advanced cell phones, have become a part of daily life. However, such devices all use hard materials. Kim *et al.* have developed a soft touch panel based on



Soft touch-conductive hydrogel

polyacrylamide hydrogels (cross-linked polymers swollen with water) that are highly transparent and contain trapped LiCl to enhance conductivity. The hydrogels are soft and can be stretched extensively while still maintaining touch sensitivity. —MSL

Science, this issue p. 682

BONE DEVELOPMENT

Turning chondrocytes into bone killers

The skeletal defects caused by inhibitors of histone deacetylase (HDAC) enzymes limit the clinical value of these drugs. Carpio *et al.* found that a specific isoform, HDAC3, promotes bone growth by restricting the secretion of inflammatory factors from cartilage cells called chondrocytes. Mice that lacked *Hdac3* in chondrocytes after birth had impaired long bone development. Chondrocytes from these mice had increased activation of a proinflammatory transcription factor. The findings help to explain why HDAC inhibitors are not a good option for children and pregnant women and for patients with bone fractures. —LKF

Sci. Signal. **9**, ra79 (2016).

TRANSPLANTATION

Make way for stem cells

Current chemotherapy or radiation regimens to prepare the host bone marrow for transplantation of donor hematopoietic stem cells (HSCs) can be harmful. Chhabra *et al.* tested an alternative strategy in which the surface antigen CD47 is blocked, which allows phagocytic myeloid cells to engulf host HSCs that are displaced by antibody targeting, effectively depleting HSCs from the bone marrow of immunocompetent mice and enabling engraftment of donor cells. —LP

Sci. Transl. Med. **8**, 351ra105 (2016).

IN OTHER JOURNALS

Edited by **Kristen Mueller**
and **Jesse Smith**



Symbiotic root fungi help trees access nutrient "patches" in soil.

SYMBIOSIS

Fungi help trees hunt for food

Trees face a difficult paradox: how to access nutrients that are not uniformly spread throughout the soil while remaining stationary. Nearly all plant roots associate with symbiotic soil-dwelling fungi (either intracellular arbuscular mycorrhizal or extracellular ectomycorrhizal fungi), which aid in nutrient uptake. Chen *et al.* now report that mycorrhizae help trees forage. Tree species with finer roots that associate with arbuscular mycorrhizal fungi produce more roots when they encounter a nutrient patch, and those that associate with ectomycorrhizal fungi produce more fungal hyphae. Moreover, trees in mixed woodlands probably have complementary foraging strategies by virtue of their differing symbionts, likely contributing to tree diversity in temperate forests. —CA

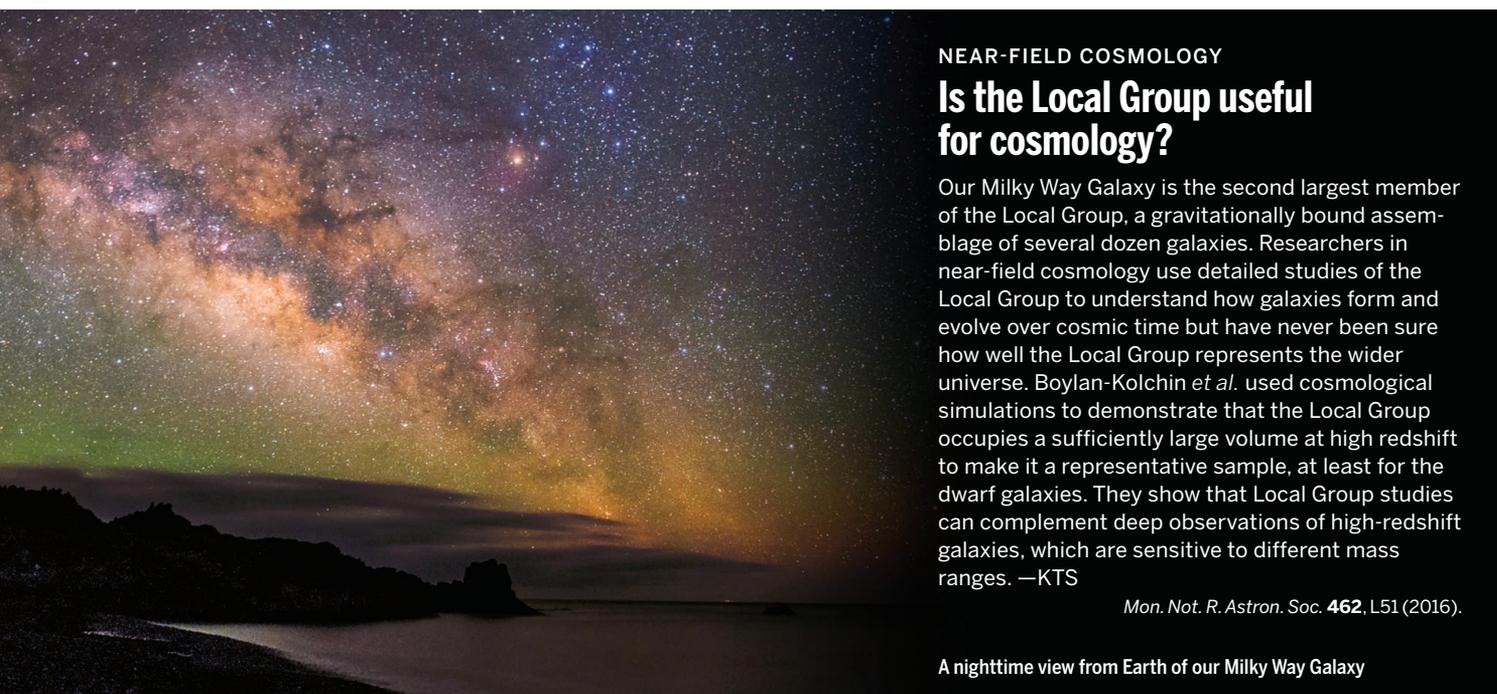
Proc. Natl. Acad. Sci. U.S.A. 10.1073/pnas.1601006113 (2016).

PSYCHOLOGY

The persuasiveness of reductionism

A decade ago, it seemed as though every other neuroscience paper in high-profile journals featured multiple multicolored images of brain scans.

In some cases, readers—many of whom were psychologists who had written papers on the same topic—pointed out that the pictographic scans added little explanatory power. Hopkins *et al.* have extended an earlier study of the relative impact of psychology and



NEAR-FIELD COSMOLOGY

Is the Local Group useful for cosmology?

Our Milky Way Galaxy is the second largest member of the Local Group, a gravitationally bound assemblage of several dozen galaxies. Researchers in near-field cosmology use detailed studies of the Local Group to understand how galaxies form and evolve over cosmic time but have never been sure how well the Local Group represents the wider universe. Boylan-Kolchin *et al.* used cosmological simulations to demonstrate that the Local Group occupies a sufficiently large volume at high redshift to make it a representative sample, at least for the dwarf galaxies. They show that Local Group studies can complement deep observations of high-redshift galaxies, which are sensitive to different mass ranges. —KTS

Mon. Not. R. Astron. Soc. **462**, L51 (2016).

A nighttime view from Earth of our Milky Way Galaxy

neuroscience to encompass both more reductive disciplines, such as physics, chemistry, and biology, and less reductive disciplines, such as social science. They find that study subjects judge scientific explanations to be of higher quality when they contain information from the neighboring more reductive field, even when that information is irrelevant. —GJC

Cognition **155**, 67 (2016).

MAGNETISM

Measuring the elusive interaction

When two spins interact, the part of the interaction that changes sign when the spins are exchanged is called the Dzyaloshinsky-Moriya (DM) interaction. The DM interaction favors nonparallel spins and can play an important role in the formation of skyrmions (miniature whirlpools of spins) and in the magnetoelectric effect in multiferroics. However, measuring both the size and the direction of this interaction is tricky. Laplane *et al.* conceived a general method that they demonstrated on a pair of Nd³⁺ ions embedded as dopants in a YVO₄ crystal. Working at low temperatures where the Nd³⁺

ions behaved as effective $\frac{1}{2}$ spins, they extracted the details of the interaction by using the electron spin resonance technique combined with optical detection. —JS

Phys. Rev. Lett. **117**, 037203 (2016).

ECOPHYSIOLOGY

Staying away for the long haul

Frigatebirds can fly without stopping for months. Such long flights, however, present considerable challenges to some physiological processes, notably sleep. Scientists think that birds undergoing long flights use hemispheric sleep, where half of the brain sleeps at a time. To find



Frigatebirds can fly long distances with little need for sleep.

out whether this is indeed the case, Rattenborg *et al.* placed mobile electroencephalogram recorders on flying frigatebirds and found that although they do use hemispheric sleep, especially when riding updrafts, they actually sleep remarkably little during their long flights. Though the birds may be able to catch up on their sleep when on land, it seems that they can mostly avoid the sleep deprivation effects that plague most vertebrates, an ability that is probably shaped by strong selection for wakefulness during flight. —SNV

Nat. Comm. **10**, 1038/ncomms12468 (2016).

CLIMATE WARMING

Warming our world

How much will human emissions of carbon dioxide cause global temperatures to rise? The magnitude of that warming depends a great deal on the response of clouds: If clouds reflect more sunlight back into space, warming will be reduced, but if they reflect less, warming will be greater. Brient and Schneider use satellite data to show that low clouds over tropical oceans will reflect less shortwave radiation as surface waters warm, supporting estimates of climate

sensitivity to atmospheric carbon dioxide concentrations on the higher end of the existing range, and that this behavior will make it unlikely that global temperature rise can be capped at less than the common target of 2.0°C. —HJS

J. Clim. **10**, 1175/JCLI-D-15-0897.1 (2016).

RNA STABILITY

Codon optimality at genome transition

Nucleotide triplets, or codons, designate specific amino acids for protein synthesis. However, that is not their only job. In yeast and bacteria, codons contribute to RNA stability, with “optimal” codons stabilizing RNAs and “suboptimal” codons destabilizing RNAs. This is possible because multiple codons can encode the same amino acid. Bazzini *et al.* now demonstrate that codon usage in zebrafish, frogs, mice, and flies can affect transcript degradation and polyadenylation at the critical stage in development when transcription switches from the maternal to the zygotic genome. Furthermore, enriching genes with nonoptimal codons can reduce translation efficiency. —BAP

EMBO J. **10**, 15252/emj.201694699 (2016).

Science

Fungi help trees hunt for food

Caroline Ash

Science **353** (6300), 661.

DOI: 10.1126/science.353.6300.661-a

ARTICLE TOOLS

<http://science.sciencemag.org/content/353/6300/661.1>

RELATED CONTENT

<file:/content/sci/353/6300/twil.full>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. The title *Science* is a registered trademark of AAAS.

Copyright © 2016, American Association for the Advancement of Science