RESEARCH HIGHLIGHTS

Selections from the scientific literature

ASTRONOMY

Two stars have three disks

Young stars are surrounded by a rotating disk of gas and dust, from which planets are born — but astronomers have discovered that one pair of young stars orbiting around each other has three disks, not just two.

Christian Brinch at the University of Copenhagen and his colleagues used the Atacama Large Millimeter/submillimeter Array in Chile to view a system of two stars roughly 120 parsecs (391 light years) from Earth that are each surrounded by a disk. But the authors also noticed a third, larger disk surrounding the entire system. None of the disks are aligned with each other or with the orbit of the stars themselves.

This wild misalignment suggests that the stars formed from a turbulent cloud of gas, or that a third star was recently flung out of the system.
Astrophys. J. 830, **L16 (2016)**

UPMC/PITT HEALTH SCIENCES

NEUROTECHNOLOGY

Paralysed man with implant feels touch

A brain implant that is wired to a robotic arm has allowed a paralysed man to feel touch on the arm's fingers.

Robert Gaunt at the University of Pittsburgh in Pennsylvania and his colleagues placed electrodes in the brain of Nathan Copeland (pictured), whose legs and lower arms were paralysed 12 years ago. They positioned the electrodes in the somatosensory cortex — the brain region that receives sensory information from the body — and an area of the motor cortex that controls hand and arm movement. The implanted electrodes are connected by wire to a computer and robotic arm. When sensors on the fingers of the robotic arm were touched, Copeland could tell which fingers were being stimulated — and sometimes which regions of those fingers.

Putting the electrodes in different parts of the brain, or implanting more of them, could increase the sensitivity of the robotic hand.
Sci. Transl. Med. 8, **361ra141 (2016)**

DRUG DISCOVERY

Bacteria in humans yield drug

A small molecule produced by bacteria living naturally in people can help to combat a pathogen that is resistant to many antibiotics.

Sean Brady at the Rockefeller University in New York City and his colleagues analysed the genomes of the human microbiota to identify genes predicted to encode molecules with antibiotic properties. They then synthesized these molecules and measured their antibacterial effects. One, humimycin A, was active against a strain of methicillin-resistant *Staphylococcus aureus* (MRSA) collected from patients. MRSA-infected mice treated with humimycin A and dicloxacillin, a commercially available antibiotic, all remained alive 48 hours after infection. By contrast, at least half of the animals died after treatment with either drug alone.

Improved bioinformatic and chemical-synthesis techniques could lead to the discovery of more compounds with therapeutic potential from the microbial world, the authors suggest.
Nature Chem. Biol. **http://dx.doi.org/10.1038/nchembio.2207 (2016)**

CLIMATE CHANGE

Wildfires burn more US forest

Climate change resulting from human activities has nearly doubled the area burned by forest fires in the western United States over the past three decades.

John Abatzoglou at the University of Idaho in Moscow and Park Williams at Columbia University in Palisades, New York, used a climate model and data on the dryness of forested areas since 1979 to assess the contribution that climate change has made to wildfires. They found that warming temperatures made the forests drier, increasing fire risk, and expanded the area burned in