**AStronomy**

**Bright light from a black hole**

A brilliant flash in the heavens was generated by a black hole half a billion times more massive than the Sun.

The flash, detected in 2015 in a galaxy about 1.2 billion parsecs from Earth, was originally described as the brightest exploding star ever seen. But Thomas Krühler at the Max Planck Institute for Extraterrestrial Physics in Garching, Germany, and his colleagues argued that the flash was actually the death throes of a star being shredded by a supermassive black hole at the galaxy’s centre. Now, the researchers reveal findings that bolster their theory.

Analysis of the galaxy’s gas suggests that it was ionized by radiation emitted as the black hole gobbled up matter over millions of years. The team also found that some of the galaxy’s properties, such as the age of its central stars, are similar to those of other galaxies where scientists have caught black holes in the act of consuming matter.

*Astron. Astrophys.* 610, A14 (2018)

**Society**

**Cleaning empty plots cuts crime**

Cleaning and greening bleak urban spaces measurably improves safety in many troubled US neighbourhoods — and also makes people feel safer.

Neglected urban spaces such as vacant properties are hotspots for gun violence and other illegal activities. In the United States, about 15% of city space is deemed vacant or abandoned. To test the effect of sprucing up such spaces, Charles Branas at Columbia University in New York City and his colleagues studied the vicinity of 541 randomly sampled vacant plots in Philadelphia, Pennsylvania.

The team had some of the lots cleaned, fenced and planted with grass and trees. In impoverished neighbourhoods with upgraded lots, residents’ feelings of safety rose significantly and crimes reported to police fell, compared with areas around plots that had not been upgraded.

Restoration of blighted city spaces is an inexpensive alternative to gentrification and relocating urban residents, the authors say.

*Proc. Natl Acad. Sci. USA* http://doi.org/ck23 (2018)

**Organic Chemistry**

**A metal tool to ease drug-making**

An innovative catalyst quickly assembles a chemical structure common in antibiotics and antitumour compounds.

Chemists have designed a variety of metal-based catalysts that strip a hydrogen atom from a chemical skeleton and replace it with a nitrogen atom. But catalysts for building nitrogen-containing structures called lactams have remained out of reach, probably because an intermediate compound easily decomposes into the wrong structure.

A team led by Mu-Hyun Baik and Sukbok Chang at the Korea Advanced Institute of Science and Technology’s Institute for Basic Science in Daejeon customized an iridium-based catalyst by decorating it with molecules that maximize its lactam-forming ability. The catalyst is so efficient that competing reactions are thwarted.

The catalyst successfully transforms several widely available molecules, including some with complicated structures, into lactams.

The find could enable more-efficient synthesis of drugs.

*Science* 359, 1016–1021 (2018)

**Marine Biology**

**Fish with a side of plastic**

Hungry seals provide direct evidence that plastic travels up the ocean food chain from prey to predator.

Researchers have long assumed that marine predators ingest microscopic fragments of plastic by eating prey filled with it. To test this idea, Penelope Lindeque at the Plymouth Marine Laboratory, UK, and her team analysed faeces from captive male grey seals (*Halichoerus grypus*) at a seal sanctuary. The team also dissected the digestive tracts of wild-caught Atlantic mackerel (*Scomber scombrus*), which are fed intact to the predators.

Almost one-third of the fish and nearly half of the seal–faeces samples contained one to four plastic fibres and fragments. Among the most common was polyethylene, which is found in plastic