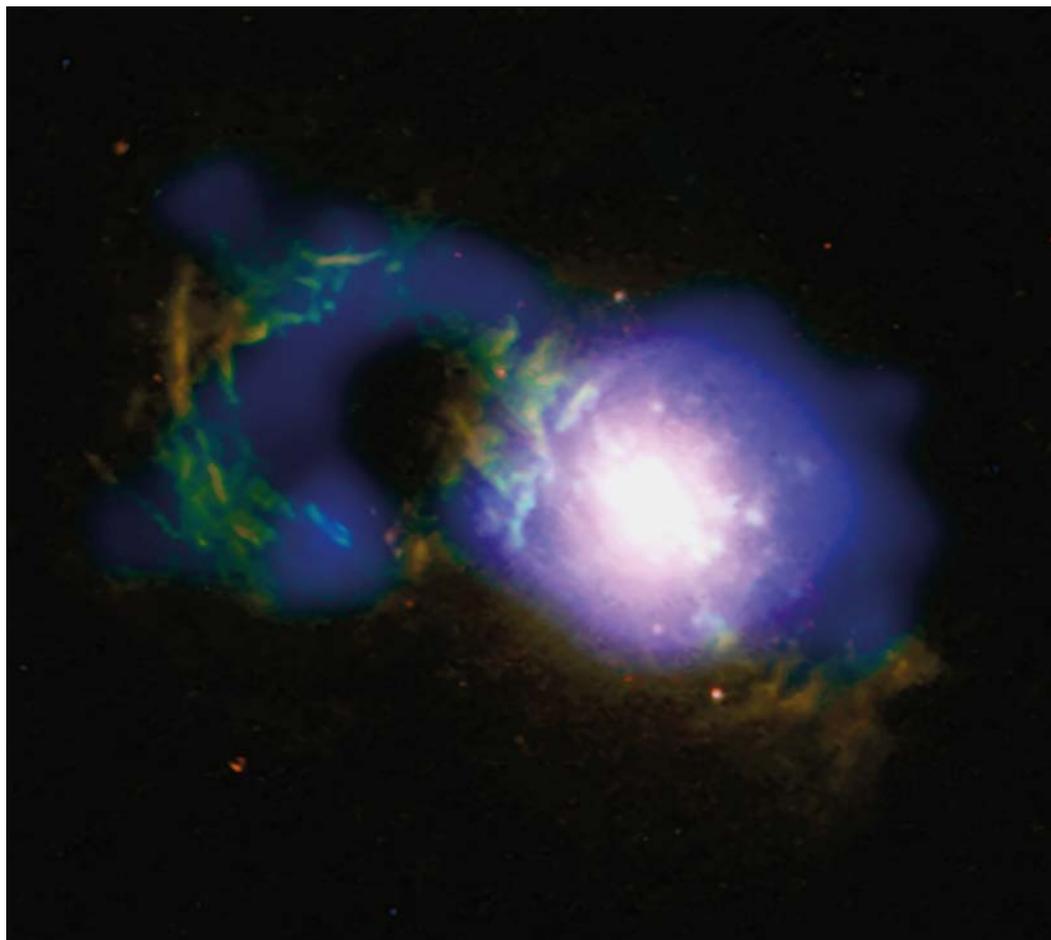


Winds are still stirring in the Teacup quasar

BLACK HOLE A quasar thought to be rapidly fading over time is in fact hiding an active central source, identified from its persistent X-ray signal. The quasar SDSS J1430+1339 is known as the Teacup, from its shape, and was discovered in Sloan Digital Sky Survey data as part of the Galaxy Zoo citizen-science project. The central black hole lies within the cup and the handle is a bubble of gas and dust blown some 30 000 light years from the centre of the galaxy. Within this material are ions indicating high levels of radiation from the central engine of the quasar in the past, but there were also signs of a decrease of 50–600 times over the past 40 000–100 000 years. Now X-ray data from ESA's XMM-Newton telescope and NASA's Chandra observatory show that, far from dying away, the central engine is still producing X-rays, behind a cloud of gas and dust. It has decreased in energy, but only by about 25 times over the past 100 000 years. In addition, the new data show hotter gas around the black hole and in the bubble, suggesting that winds are creating the distinctive shape seen here. This image shows X-ray data in blue and optical data from Hubble in red and green. (X-ray: NASA/CXC/Univ. Cambridge/G Lansbury *et al.*; optical: NASA/STScI/W Keel *et al.*)

<http://bit.ly/2YnYx9o>



Video captures lunar impact

THE MOON Did you see a flash on the Moon during the lunar eclipse in January? If so, you were not alone: the flash at 4.41 GMT on 21 January was bright enough to see with the naked eye and was widely reported. Researchers estimated that a rock of mass 45 kg and 30–60 cm across hit the Moon at 61 000 km per hour. The impact vaporized the impactor producing a glowing cloud of debris.

Jose Maria Madiedo (University of Huelva) and Jose L Ortiz (Institute of Astrophysics of Andalusia) run the Moon Impacts Detection and Analysis System (MIDAS), using eight telescopes in Spain to monitor the lunar surface. They found the impact in video footage, which you can see on the RAS website. They estimate that the impact produced a crater 15 m across, and that the impact energy was equivalent to 1.5 tonnes of TNT. Madiedo and Ortiz published in *Monthly Notices of the RAS*.

<http://bit.ly/2YoDvay>

Time to nominate for RAS medals

AWARDS Now is the time to consider your nominations for the RAS medals and awards to be announced in 2020, our bicentenary year. Our medals and awards celebrate significant contributions to research, education and outreach and cover all the sciences under the RAS remit. This year we are seeking nominations for the Agnes Mary Clerke Medal for the history of astronomy or geophysics, which is awarded every three years.

The awards will be announced

in January 2020 – and we are seeking a broad field of nominees. We ask Fellows and others – anyone can make a nomination – to look afresh at the criteria for the medals and awards for 2020 and consider nominating colleagues. There are awards for early-career scientists as well as those recognizing career-long achievement – and don't forget the group awards.

Full details of the awards and their criteria are on the website. <https://ras.ac.uk/awards-and-grants>

An out-of-this-world sleepover



OUTREACH

180 Rainbows, Brownies, Girlguides and Rangers had a cosmic sleepover at the National Space Centre in Leicester this spring, combining the museum and planetarium shows with exploding rockets and space-themed cakes.

The RAS has developed a space interest badge for Girlguiding, as part of the RAS200 projects to

develop innovative outreach to celebrate the Society's bicentenary in 2020. This trip, for girls aged 5–18 from Girlguiding Ribble Valley, drew together space with other themes such as women in STEM. Betty, age 9, from St James Brownies said: "It was amazing, I've never been on a trip like it. The planetarium activities were fascinating and I learnt so much." <http://ras200.org>

Exoplanet has rare earths

SPECTROSCOPY The hottest exoplanet has an atmosphere rich not only in metals, but in rare earth elements as well.

KELT-9 is an extremely hot giant gas planet orbiting a star twice as hot as the Sun. The exoplanet's close orbit means that its atmosphere reaches temperatures of around 4000° and its constituents are mostly ionized. The resulting clear atmosphere is eminently suitable for spectroscopy, using the light from the central star.

In 2018, this revealed iron and titanium in the planet's atmosphere; now the same team of researchers from the universities of Bern and Geneva have found an additional 73 species, including sodium, magnesium, chromium and the rare Earth metals scandium and yttrium. They also measured the altitude at which these species were measured and detected strong global wind patterns in the upper atmosphere. <https://bit.ly/2YriA6P>