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Top News

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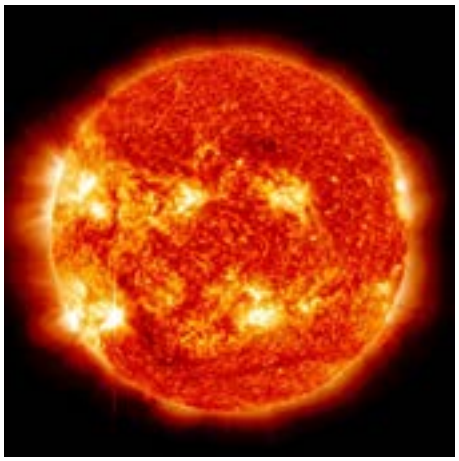
Astronomers find a 'solar twin' — a star that looks almost exactly like our Sun



A composite image of the Sun taken by ASA's Solar Dynamics Observatory (SDO).
NASA/SDO

Astronomers have found a star that was likely born in the same stellar nursery as our Sun. The newfound sibling is only the second ever to be identified.

Didn't we all have that "Parent Trap" fantasy, where we'd come across a long-lost sibling that was separated at birth? That dream didn't go beyond a movie plot for the most of us, but it's just come true for the Sun.

In a rare discovery, an international team of astronomers has found a star that was likely born in the same stellar nursery as our Sun. After analyzing the characteristics of thousands of stars in the Milky Way, the group is confident that they've not only found a solar sibling, but possibly a solar twin.

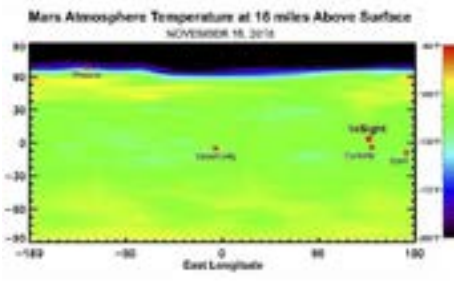
Named HD186302, the near-identical star is only the second of the Sun's close relatives ever identified. The finding could help researchers understand the environment that the Sun and its siblings formed in, and possibly uncover habitable planets within the twin's orbit.

A Turbulent Past

The Sun sits in relative isolation now, but billions of years ago, it was part of a young, crowded neighborhood. Like all stars, it was born in a massive stellar nursery with thousands of others. But due to the tidal forces of the Milky Way, the nursery was torn apart, and the stars were scattered about the galaxy. And since stars often travel far from their birthplaces, finding them has been a pretty tough task.

However, researchers from the AMBRE project are working hard to uncover the Sun's ancient family. A collaboration between ESO and the Observatoire de la Cote d'Azur, AMBRE uses an array of spectrographs, along with data from ESA's GAIA mission, to identify the ages, chemical abundance and motions of stars in the Milky Way. Thanks to this extensive dataset, researchers from the Instituto de Astrofísica e Ciências do Espaço (AI) in Portugal were able to probe 17,000 different stars. ...Read More...

InSight Spacecraft on Course for Mars Touchdown



This map shows the temperature of the Martian atmosphere 16 miles above the surface. The data was taken on Nov. 18, 2018, about one week before NASA's InSight lander is scheduled to touchdown on the Martian surface. The temperature indicates to mission scientists the amount of dust activity in the atmosphere. The map shows a range of latitudes, with temperatures clearly dropping near the planet's north pole. The landing locations of various NASA Mars landers are shown for context. Credit: NASA/JPL-Caltech

NASA's Mars Interior Exploration using Seismic Investigations, Geodesy and Heat Transport spacecraft is on track for a soft touchdown on the surface of the Red Planet on Nov. 26, the Monday after Thanksgiving. But it's not going to be a relaxing weekend of turkey leftovers, football and shopping for the InSight mission team.

Engineers will be keeping a close eye on the stream of data indicating InSight's health and trajectory, and monitoring Martian weather reports to figure out if the team needs to make any final adjustments in preparation for landing, only five days away.

"Landing on Mars is hard. It takes skill, focus and years of preparation," said Thomas Zurbuchen, associate administrator for the Science Mission Directorate at NASA Headquarters in Washington.

"Keeping in mind our ambitious goal to eventually send humans to the surface of the Moon and then Mars, I know that our incredible science and engineering team - the only in the world to have successfully landed spacecraft on the Martian surface - will do everything they can to successfully land InSight on the Red Planet."

InSight, the first mission to study the deep interior of Mars, blasted off from Vandenberg Air Force Base in Central California on May 5, 2018. It has been an uneventful flight to Mars, and engineers like it that way. They will get plenty of excitement when InSight hits the top of the Martian atmosphere at 12,300 mph (19,800 kph) and slows down to 5 mph (8 kph) - about human jogging speed - before its three legs touch down on Martian soil. That extreme deceleration has to happen in just under seven minutes.

"There's a reason engineers call landing on Mars 'seven minutes of terror,'" said Rob Grover, InSight's entry, descent and landing (EDL) lead, based at NASA's Jet Propulsion Laboratory in Pasadena, California. ...Read More...

What magnetic fields can tell us about life on other planets

An artist's concept of a super-Earth in the habitable zone of a star smaller and cooler than the sun. Such large planets could have long-lasting magma oceans that generate magnetic fields capable of protecting incipient life. The graphic was created to model Kepler-62f, one of many exoplanets discovered by NASA's now inoperable Kepler space telescope. (Image courtesy of NASA Ames/JPL-Caltech/Tim Pyle)

Every school kid knows that Earth has a magnetic field - it's what makes compasses align north-south and lets us navigate the oceans. It also protects the atmosphere, and thus life, from the Sun's powerful wind.

But what about other Earth-like planets in the galaxy? Do they also have magnetic fields to protect emerging life?

A new analysis looks at one type of exoplanet - super-Earths up to five times the size of our own planet - and concludes that they probably do have a magnetic field, but one generated in a totally novel way: by the planets' magma oceans.

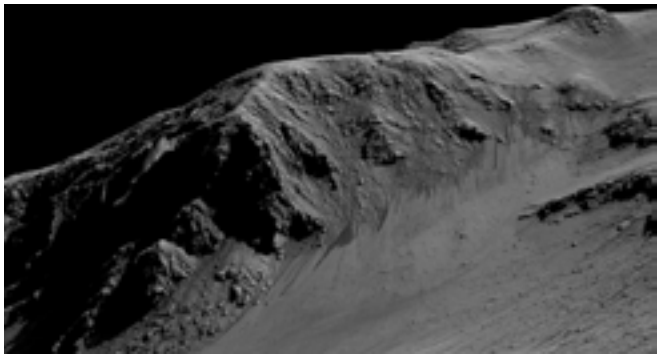
The surprising discovery that slowly churning melted rock at or under the surface can generate a strong magnetic field also suggests that in Earth's early years, when it was largely a lump of melted rock, it also had a magma-generated magnetic field. This was in addition to its present-day field, which is generated in the liquid-iron outer core.

"This is a new regime for the generation of planetary magnetic fields," said Burkhard Militzer, a UC Berkeley professor of earth and planetary science. "Our magnetic field on Earth is generated in the liquid outer iron core. On Jupiter, it arises from the convection of liquid metallic hydrogen. On Uranus and Neptune, it is assumed to be generated in the ice layers. Now we have added molten rocks to this diverse list of field-generating materials."

The link between a planet's interior and its magnetic field also provides a way for astronomers to learn about the makeup and ages of exoplanets too far away to visit.

"This is far in the future, but if someone makes an observation of an exoplanet and they find a magnetic field, that may be an indication that there is a magma ocean, even if they cannot see this directly," Militzer said. ..Read More...

An orbiter glitch may mean some signs of liquid water on Mars aren't real



HIGH AND DRY Ephemeral dark streaks on Martian craters, like the ones in this Mars Reconnaissance Orbiter image of Horowitz crater, were thought to be signs of salty water. A new analysis suggests they're not.

A new analysis of images once thought to show hints of saltwater suggests they actually don't.

Some signs of water on Mars may have just dried up.

Thanks to the way data from NASA's Mars Reconnaissance Orbiter are handled, the spacecraft may be seeing signs of hydrated salts that aren't really there, planetary scientists report online November 9 in Geophysical Research Letters.

That lack of salts could mean that certain sites proposed as places where life could exist on Mars today, including purported streaks of liquid water on the walls of Martian craters, are probably dry and lifeless.

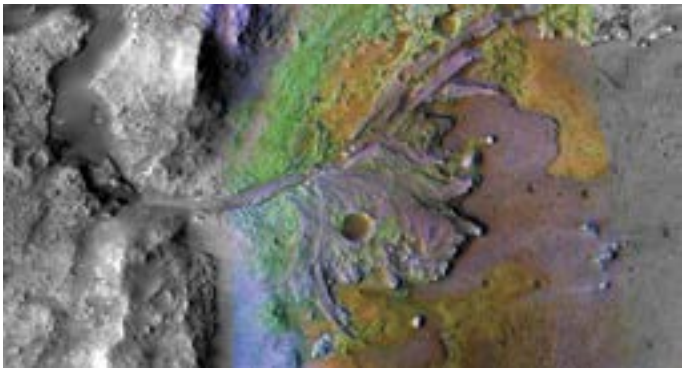
"People think these environments might be inhabitable by microbes," says planetary scientist Ellen Leask of Caltech. But "there might not actually be any real evidence for it," at least not from orbit.

Leask and her colleagues found the problem while searching for hydrated salts called perchlorates in maps of Mars taken by the orbiter's Compact Reconnaissance Imaging Spectrometer for Mars, or CRISM. Perchlorates can lower the freezing point of water by up to 80 degrees Celsius, which could be enough to melt ice in the frigid Martian climate.

Both the Phoenix Mars lander and the Curiosity rover have detected tiny amounts of perchlorates in Martian soil. "Finding perchlorate was a big deal, because it's a way to really make liquid water on Mars," says planetary scientist Bethany Ehlmann of Caltech.

To see if the salts showed up in other locations on Mars, scientists turned to CRISM's chemical maps, which show how light reflects off of the Martian surface in hundreds of wavelengths. The resulting spectra allow scientists to identify specific minerals on the surface based on the ways those minerals absorb or alter the light. ...Read More...

NASA's Mars 2020 rover will look for ancient life in a former river delta



A RIVER RAN THROUGH IT The next NASA Mars rover will land at Jezero crater, a former lake bed that includes the remains of an ancient river delta (seen above in this composite image from NASA's Mars Reconnaissance Orbiter). NASA/SDO

The rover will cache rocks for a future mission to bring back to Earth.

The next NASA Mars rover will hunt for signs of ancient life in what used to be a river delta, the agency announced on November 19.

The rover is expected to launch in July 2020 and to land on Mars around February 18, 2021. It will seek out signs of past life in the sediments and sands of Jezero crater, which was once home to a 250-meter-deep lake and a river delta that flowed into the lake.

"This is a major attraction from our point of view for a habitable environment," said Mars 2020 project scientist Ken Farley of Caltech in a news conference discussing the site. "A delta is extremely good at preserving biosignatures." Any evidence of life that may once have existed in the lake water, or even evidence that came from the river's headwaters and flowed downstream, could be preserved in the rocks that are there today.

The 2020 rover's design is similar to that of the Curiosity rover, which has been exploring a different ancient crater lake, Gale crater, since 2012. But where Curiosity has an onboard chemistry lab for studying the rocks and minerals in its crater, Mars 2020 will have a specialized backpack for sample storage. A future mission will pick up the cached samples and return them to Earth for more detailed study, possibly sometime in the 2030s.

"The samples will come back to the best labs—not the best labs we have today, but the best labs we will have then," said science mission directorate administrator Thomas Zurbuchen of NASA headquarters in Washington, D.C.

Mars 2020 will also use a souped-up version of Curiosity's landing system called Sky Crane, in which a hovering platform lowers the rover onto the ground with a cable. Mars 2020's version will include a navigation system that will help it avoid hazards on the ground ...Read More...

ALMA's highest frequency receiver produces its first scientific result on massive star formation

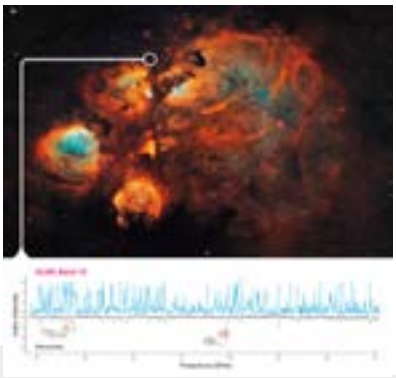


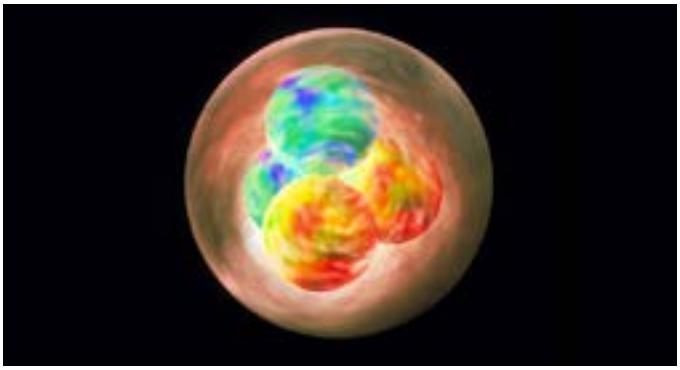
Photo of the star forming region NGC 6334I, also known as the Cat's Paw Nebula, taken by the NASA/ESA Hubble Space Telescope (top) and the high frequency radio spectra (bottom). The blue line shows the spectral lines detected by ALMA and the gray line shows the lines detected by the European Space Agency's Herschel Space Observatory. The ALMA observations detected more than ten times as many spectral lines. Note that the Herschel data have been inverted for comparison. Two molecular lines are labeled for reference. Credit: National Astronomical Observatory of Japan

The Atacama Large Millimeter/submillimeter Array (ALMA) has tuned in another new channel for signals from space. Using its highest frequency receivers yet, researchers obtained 695 radio signatures for various molecules, including simple sugar, in the direction of a massive star forming region. These first scientific results from the ALMA Band 10 receivers developed in Japan ensure a promising future for high frequency observations.

Similar to how different radio stations on Earth broadcast different information, the various frequencies of radio waves coming from space carry different information about the environment and chemical composition at their source. ALMA's Band 10 (787 to 950 GHz) receivers are its highest frequency band yet. It has been a difficult frequency band to observe, not just for ALMA, but for other ground-based radio telescopes as well.

Brett McGuire, a chemist at the National Radio Astronomy Observatory in Charlottesville, Virginia, and his team observed NGC 6634I, a nursery cloud of massive stars, using the Japanese Band 10 receivers. NGC 6334I is part of the Cat's Paw Nebula located 4,300 light-years away from Earth. NGC 6334I has been previously observed at this frequency by the European Space Agency's Herschel Space Observatory. But whereas Herschel detected 65 molecular emission lines, ALMA detected 695. The molecules detected in the direction of NGC 6334I include methanol, ethanol, methylamine, and glycolaldehyde, the simplest sugar-related molecule. Glycolaldehyde has previously been discovered at other places in space, but the clarity of the ALMA detection raises expectations that observations using the Band 10 receivers will provide new insight into the distribution of these and other molecules. ...Read More...

Nuclear 'knots' could unravel the mysteries of atoms



ALL KNOTTED UP Knotlike structures called skyrmions could help scientists study the nucleus of an atom, such as helium (illustrated).

Structures called skyrmions might overcome hurdles in nuclear physics calculations.

Knotlike structures called skyrmions might help scientists untangle the inner workings of atomic nuclei, a new study suggests.

A skyrmion is a tiny disturbance in a substance, a swirling pattern that, like a knot, is difficult to undo. In the 1960s, nuclear physicist Tony Skyrme suggested that these structures — since named after him — could represent protons and neutrons within a nucleus in theoretical calculations. But despite some initial promise, the idea hit snags. In particular, skyrmion calculations produced misshapen nuclei.

But now researchers have improved their calculations of how protons and neutrons should cluster together in the skyrmion picture. Those results agreed with expectations based on experimental data, the team reports in a study in press at Physical Review Letters.

Here's how the idea works: Inside a nucleus, particles called pions are constantly zinging around, helping to hold the nucleus together. Just as an electron has an electric field that can jostle other particles, those pions are associated with fields too. In Skyrme's original picture, protons and neutrons can be described as twists in the pion field — or skyrmions — akin to a knot tied in a piece of string.

In reality, protons and neutrons are each made up of smaller subatomic particles called quarks and gluons, and the fundamental theory that describes how those particles interact, called quantum chromodynamics, is impossibly complex. Skyrmions could simplify calculations — if only the technique produced the correct answers.

The right shapes

Scientists predict that some atomic nuclei should be shaped into multiple clumps. Previously, the shapes of those nuclei, when calculated with skyrmions, displayed forms that disagreed with that prediction (top row). But new skyrmion calculations found nuclei....Read More...

Researchers defy 19th Century law of Physics in 21st century boost for energy efficiency

3-D printed model of Dr Jordi Prat-Camps' experiment which was then rotated at very high speeds. Credit: University of Sussex

Research led by a University of Sussex scientist has turned a 156-year-old law of physics on its head in a development which could lead to more efficient recharging of batteries in cars and mobile phones.

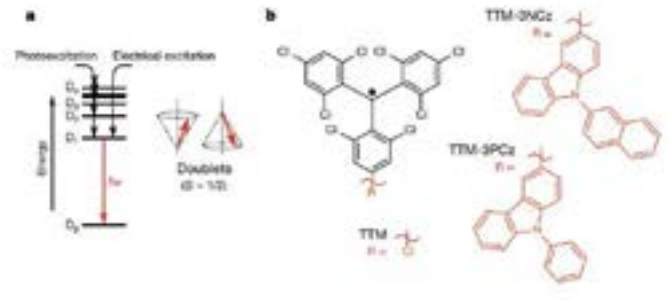
Dr. Jordi Prat-Camps, a research fellow at the University of Sussex, has for the first time demonstrated that the coupling between two magnetic elements can be made extremely asymmetrical. Working with colleagues from the Austrian Academy of Sciences and University of Innsbruck, Dr. Prat-Camps' research rips up the physics rule book by showing it is possible to make one magnet connect to another without the connection happening in the opposite direction.

The findings run contrary to long-established beliefs of magnetic coupling, which emerge from the four Maxwell equations dating back to the seminal works of Michael Faraday and James Clerk Maxwell in the 19th century.

Dr. Prat-Camps said: "We have created the first device that behaves like a diode for magnetic fields. Electric diodes are so crucial that none of the existing electronic technologies such as microchips, computers or mobile phones would be possible without them. If our result for magnetic fields would have one millionth of the same impact as the developments in electric diodes, it would be a hugely impactful success. The creation of such a diode opens up a lot of new possibilities for other scientists and technicians to explore. Thanks to our discovery we think it might be possible to improve and the performance of wireless power transfer technologies to improve the efficiency of recharging phones, laptops and even cars."

Dr. Prat-Camps' breakthrough builds on research he and colleagues have carried out over a number of years focusing on the control and manipulation of magnetic fields by the use of metamaterials. Recently Dr. Prat-Camps and his collaborators have developed new tools to control magnetism including magnetic undetectability cloaks, magnetic concentrators and wormholes. ...Read More...

Radical approach for brighter LEDs



a, Doublet emission following photo- and electrical excitation. The illustration on the right indicates the electron spin vector representation for doublets. b, Chemical structures of TTM, TTM-3NCz and TTM-3PCz. Credit: Nature, DOI: 10.1038/s41586-018-0695-9

Scientists have discovered that semiconducting molecules with unpaired electrons, termed 'radicals' can be used to fabricate very efficient organic-light-emitting diodes (OLEDs), exploiting their quantum mechanical 'spin' property to overcome efficiency limitations for traditional, non-radical materials.

Radicals are usually noted for their high chemical reactivity and often detrimental effects, from human health to the ozone layer. Now radical-based OLEDs could form the basis for next-generation displays and lighting technologies.

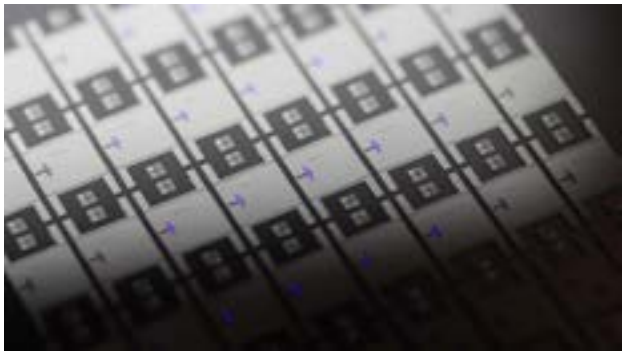
Writing in Nature, the team from the University of Cambridge and Jilin University describe how stabilised radicals form electronic states known as 'doublets', on account of the spin character being either 'up' or 'down.'

Running electricity through these radical-based OLEDs leads to the formation of bright-doublet excited states which emit deep-red light with near-100% efficiency. For traditional compounds (i.e. non-radicals without an unpaired electron), quantum-mechanical-spin considerations dictate that charge injection forms 25% bright-'singlet' and 75% dark-'triplet' states in OLED operation. Radicals pose an elegant solution to this fundamental spin problem which has troubled researchers ever since the development of OLEDs from the 1980s.

Dr. Emrys Evans, a lead co-author who works in Professor Sir Richard Friend's group at the Cavendish Laboratory, said "On the face of it, radicals in OLEDs shouldn't really work, which makes our results so surprising. The radicals themselves are unusually emissive, and they operate in the OLEDs with unusual physics."

When isolated in a host matrix and excited with a laser, the radicals, atypically, have close to unity efficiency for light emission. The highly emissive behaviour was translated to highly emissive LEDs, but with another twist: in the devices, the electrical current injects electrons into the unpaired electron energy level of the radical, and pulls electrons out of a lower-lying level, and another portion of the molecule, to form bright-doublet excited states. ...Read More...

Quantum sound waves to open doors for more powerful sensors



An array of the acoustic wave devices used in the experiment on quantum circuits. The bright purple part is the active part of the device. Credit: Kevin J. Satzinger

For the last decade, scientists have been making giant leaps in their ability to build and control systems based on the bizarre rules of quantum mechanics, which describe the behavior of particles at the subatomic scale.

But a challenge is getting delicate quantum systems to play well with mechanical ones—anything with moving parts—which underlie a great deal of existing technology.

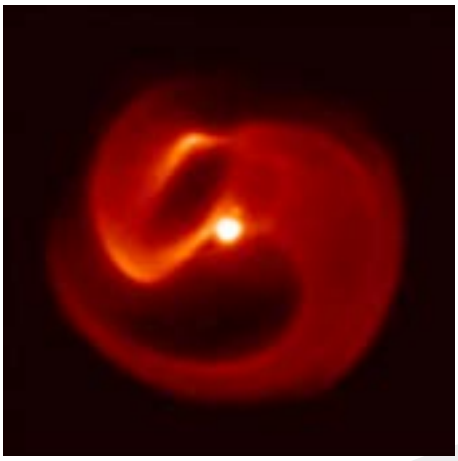
In a first, scientists with the Institute for Molecular Engineering at the University of Chicago and Argonne National Laboratory have built a mechanical system—a tiny "echo chamber" for sound waves—that can be controlled at the quantum level, by connecting it to quantum circuits. Published Nov. 21 in Nature, the breakthrough could extend the reach of quantum technology to new quantum sensors, communication and memory.

"Getting these two technologies to talk to one another is a key first step for all kinds of quantum applications," said lead study author Andrew Cleland, the John A. MacLean Sr. Professor for Molecular Engineering Innovation and Enterprise and a senior scientist at Argonne National Laboratory. "With this approach, we've achieved quantum control over a mechanical system at a level well beyond what's been done before."

In particular, Cleland said, there's been much interest in integrating quantum and mechanical systems in order to make incredibly precise quantum sensors that could detect the tiniest of vibrations or interact with individual atoms.

"Many techniques for detecting things rely on sensing force and displacements—meaning motion," he said. "These sensors play a fundamental role in any type of application where you're trying to measure something. And mechanical systems are the easiest to build and the most sensitive, so there's long been an interest in getting them to the quantum limit." (Mechanical sensors, for example, are at the heart of the systems that detect gravity waves—the ripples in the fabric of space-time that allowed us to "see" black holes colliding across the universe.) ...Read More...

Doomed star in Milky Way threatens rare gamma-ray burst



This is an image of Apep captured at 8 microns in the thermal infrared with the VISIR camera on the European Southern Observatory's VLT telescope, Mt Paranal, Chile. The system can be seen to be a binary, with a much fainter companion to the North of the heart of the system. This companion is not believed to play a role in the sculping of the extended dust plume, about 12 arcseconds across. The origin of this structure comes from the central region, believed itself to contain a binary (the whole thing being a triple star). Credit: Peter Tuthill/University of Sydney/ESO

University of Sydney astronomers, working with international colleagues, have found a star system like none seen before in our galaxy. The scientists believe one of the stars—about 8000 light years from Earth—is the first known candidate in the Milky Way to produce a dangerous gamma-ray burst, among the most energetic events in the universe, when it explodes and dies.

The system, comprising a pair of scorchingly luminous stars, was nicknamed Apep by the team after the serpentine Egyptian god of chaos. One star is on the brink of a massive supernova explosion.

The findings, published today in Nature Astronomy, are controversial as no gamma-ray burst has ever been detected within our own galaxy, the Milky Way.

Yet in the southern constellation of Norma, nestled just beneath Scorpio's tail, astronomers have discovered this uniquely beautiful star system.

At its heart, wrapped in an elegantly sculpted plume of dust and gas, lies a powerful binary pair.

The two hot, luminous stars—known to astronomers as Wolf-Rayets - orbit each other every hundred years or so, according to the research conducted at the Sydney Institute for Astronomy.

This orbital dance is embossed on a fast wind streaming off the stars. Using spectroscopy, the astronomers have measured the velocity of the stellar winds as fast as 12 million kilometres an hour, about 1 percent the speed of light. ...Read More...

'An Entirely New Way Of Thinking': The ISS Celebrates 20 Years in Space

The crew of Soyuz MS-08 spacecraft took this image of the International Space Station in October 2018. Russian space agency Roscosmos released the photo to celebrate the space station's 20th anniversary. Credit: Roscosmos/NASA/Flickr

For two minutes, NASA astronaut Leroy Chiao could see nothing but blue-marbled Earth swirling above his head. "Surreal" is how he described the moment. Chiao was in the middle of a lengthy spacewalk to assemble part of the International Space Station, an orbiting laboratory the likes of which had never been seen before.

This Nov. 20 marked the 20th anniversary of the launch of the station's first component, made possible by the contribution of hundreds of engineers, space shuttle astronauts like Chiao, international support and the crews who continue launching up to this day. It has been continuously occupied since Nov. 2, 2000.

As we reflect on what the space station has afforded humanity — diplomacy, progress in human spaceflight and discoveries in the life sciences — we also have to wonder what the space lab's future holds.

The International Space Station, or ISS, pushed NASA into "an entirely new way of thinking," Gary Oleson, a station engineer, told Space.com. Oleson worked as a member of NASA's Space Station Program Office from 1988 to 1993; at first doing the cost side of systems engineering, and then as a principal systems engineer liaison, where he focused on the project's logistics and maintenance.

"We normally think of a spacecraft as being a spacecraft," Oleson said. "But it turned out that the International Space Station, during the assembly, was not, from an engineering point of view, one spacecraft. It was at one time 19 different spacecraft, because every time you went up and added a new element, you had a different spacecraft. It had a different mass; it had a different reliability."

That's just one reason why the team was thrilled that space station construction went so smoothly. "We were kind of surprised when we didn't have bigger technical hiccups during the assembly phase," Chiao told Space.com. "The pieces actually all fit together. ...Read More...

Special Read:

How would we save the planet from a killer asteroid?

Meteors are both common and beautiful. But larger impactors can cause devastating harm.
NPS

We don't need to be scared of everything that falls from space. In fact, literal tons of space rocks rain down daily, though that's mostly in the form of minuscule dust grains. But every 100 million years or so, catastrophe strikes in the form of a rock spanning miles.

The last one killed not just the dinosaurs, but three-quarters of all life on Earth. The effects on humans could be equally devastating — bomb shelters wouldn't cut it in the face of such an event.

Not when the shaken Earth hurls tsunamis onto every shore. Not when volcanoes explode in angry retort. Not when the skies go dark with the asteroid version of a nuclear winter, dust and debris covering the sun. Even people who survive the first wave of destruction would inherit a world utterly destroyed. The world's stubbornest creatures, the cockroaches and rats and tardigrades, would probably be fine. But the rest of us are doomed.

It's a cataclysm of almost unthinkable proportions, but history tells us that it is indeed possible. Thankfully humans today have rockets and nuclear bombs and NASA. We can engineer a way out of this.

Stop That Asteroid!
Back in 1998, Congress tasked NASA with identifying these killer asteroids, and expanded their demands in 2005. As it stands, by 2020 NASA is supposed to have identified 90 percent of asteroids 450 feet or larger — and they're making good progress on that. So let's assume we can spot an asteroid hurtling toward us — what's the next step?

It turns out we have options, but our best bet is never to blow up the incoming object. Destroying a massive rock miles across is difficult work, and in the best case, you still end up with a cloud of small debris, which could still pose risks. So experts focus instead on nudging these asteroids out of Earth's path.

Again, we know where most of these objects are. If they're coming our direction, we'd likely have years of advance warning. And space is large and empty enough that a gentle nudge should be all that's required to save the planet.

Going Nuclear
Nuclear weapons are generally considered a move of last resort. They're also technically banned by the Outer Space Treaty of 1967, but most people assume if the alternative is planet-wide destruction, the treaty can be ignored. And despite what the movie Armageddon may have described, you wouldn't have to drill into the oncoming asteroid in order for a nuclear weapon to act as a deterrent. Simply exploding a bomb near the surface of the offending asteroid could be enough to alter its trajectory. This means rockets could deliver a nuclear payload without the need for humans to go anywhere near the impactor.

Large warheads can weigh up to a ton. But for all that weight, you get an explosion measured in millions of tons of TNT, enough to shift a sizable asteroid. And the behemoth rockets coming online now or in the next few years will be able to carry more than one of these warheads at once. By stuffing NASA's SLS to capacity, one study calculates you could deflect an asteroid up to 800 meters in diameter. ..Read More...

This Week's Sky at a Glance - Nov. 24 - 30, 2018

Nov 24	Sa	01:11	Moon-Aldebaran: 1.7° S
Nov 26	Mo	05:48	Moon North Dec.: 21.5° N
		10:25	Jupiter Conjunction
		16:10	Moon Perigee: 366600 km
Nov 27	Tu	09:18	Moon Ascending Node
		13:10	Mercury Inferior Conj.
Nov 28	We	00:57	Moon-Beehive: 0.8° N
Nov 29	Th	13:27	Moon-Regulus: 2.4° S
Nov 30	Fr	04:19	Last Quarter

High School Students Visit SCASS - Nov. 19, 2018

The research laboratories at the Sharjah Center for Astronomy and Space Sciences were visited by several high school students from different Sharjah schools onNov. 19, 2018. The students had a glance of all the research being done at SCASS. They visited the meteorite center, the radio astronomy laboratory, and the space weather and ionospheric laboratory. SCASS research assistants were responsible for the tour and were available to answer all questions addressed by the students regarding the possibility to engage in space sciences research.

Are We Alone? A lecture by Ms. Salma Subhi (SCASS) Nov. 21, 2018

The Sharjah Center for Astronomy and Space Sciences organized a thrilling lecture with the attendance of a large number of faculty and staff members, students, space enthusiasts, and the general public. Ms. Salma Subhi, Research Assistant in the Meteorite Center at SCASS, delivered the lectured under the title: "Are We Alone?". It explored various theories, evidence, and opinions of scientists on the possibility of the existence of other forms of life – "aliens" – in the Universe. Ms. Salma addressed a number of topics including the many historical and modern attempts of communicating with other life in the Universe, ways we visualize and model alien life, recent discoveries and exoplanets, studies on habitable zones and conditions, and the connection between meteorites and evidence of alien life. The lecture left the audience ever excited to explore and discover other forms of life in the Universe. This reinforces SCASS' role as a leading scientific center in the region that fosters a culture of scientific intrigue and knowledge gaining.

SCASS Organized a Special Seminar for IASTE Students (Nov. 22, 2018)

A special seminar was organized at SCASS on Nov. 22, 2018 by the five IASTE students working at the different research laboratories. After being three months at SCASS, the five students were very enthusiastic about what they learned and the unique experience they got. They also expressed their gratitude about the warm welcome they received from everyone. Every academic year, SCASS receives IASTE students as part of its contribution to the University of Sharjah in its international exchange students program. For the 2018/2019 program, SCASS accepted: Ms. Nicole Baar from the University of Augsburg (Germany), Ms. Cvija Perišić from the University of Banja Luka (Bosnia), Mr. Asamti Badji from the Vrije Universiteit Brussel (Belgium), Ms. Jareen Khan from the College of Aviation Technology (Bangladesh), and Mr. Mert Topaloglu from Dokuz Eylul University (Turkey). Special certificates were presented to the students by Dr. Ilias Fernini, the Deputy General Director for the Research Laboratories and Observatory.