https://www.hermanus.astronomy@gmail.com

"The Southern Cross"

The Hermanus Astronomy Centre's Monthly Newsletter

August 2026

MONTHLY MEETINGS

At the monthly meeting held on **TUESDAY 21ST JULY, Jenny Morris** was our guest speaker. Her topic was, "SOLVING THE LONGITUDE PROBLEM: A MATTER OF TIME".

The longitude problem was one of the great scientific challenges of the 17th–18th centuries. Competing astronomical and mechanical solutions were pursued, but marine chronometers ultimately provided the practical answer, transforming sea travel and global exploration. In her presentation, Jenny captivated us with the trials and tribulations of self-taught master clockmaker John Harrison, who pursued the marine timekeeper solution despite social prejudice and resistance from the Board of Longitude and rival astronomers.

For those who were unable to attend or for those who simply wish to watch it again, follow the link below to access the full presentation and the subsequent discussion:

The YouTube link: https://youtu.be/u4_xHQ3ui84

At our next meeting, scheduled for **August 18th , Professor Markus Böttcher** will be our guest speaker. His topic will be, "COSMIC GHOST PARTICLES: NEUTRINOS AND THE NEW ERA OF MULTI-MESSENGER ASTRONOMY".

Astronomical objects (such as stars and galaxies) emit not only light and other forms of radiation, but also high-energy elementary particles. The most mysterious of these are called neutrinos. This talk will explain what we know about neutrinos, the instruments with which they have been detected, and the likely sources of astrophysical neutrinos, in particular, our sun and the active centres of some galaxies.

SPECIAL INTEREST GROUP ACTIVITIES

Cosmology

The **Jul 7th** meeting featured the first half of the Michelle Thaller presentation, "MODERN PHYSICS IS FORCING US TO RETHINK EXISTENCE."

Michelle Thaller concludes that modern physics is forcing us to abandon common-sense notions of space, time, and reality. From Einstein's relativity to quantum entanglement and the holographic principle, each revolution reveals that our perception is a limited filter. The universe is far stranger than we can imagine, and the deepest truths may lie beyond human cognition. Science is a process of approaching reality, not possessing it, and humility—along with a willingness to abandon beautiful, but wrong ideas—is essential for genuine progress.

See below for the links to the video and discussion:

The YouTube link: https://youtu.be/RGbZsE7qFgw

The discussion link: https://www.youtube.com/watch?v=_On47BNVLz8

Our next cosmology meeting will be on **Aug 4th** during which we will cover the second half of the Michelle Thaller's video.

For further information regarding the Cosmology Group, contact Derek Duckitt – derek.duckitt@gmail.com

Study Group

On **28th July** we watched a documentary titled, "Homo Habilis – The first Human?"

"Just less than two and a half million years ago, in the Early Pleistocene epoch of Eastern Africa, a group of hairy, bipedal apes evolved, and soon after, began to use basic stone tools. They didn't know it, but they were the first species of a new genus that would one day transform the world beyond recognition. This was Homo habilis - the very first species of true human, under the genus name Homo - the full binominal name translating to 'handy man'."

So begins the YouTube video into the discovery, evolution, lifestyle and behaviour of *Homo Habilis* - "Handy Man".

YouTube link: https://youtu.be/aGAfNrg_Bt8

The discussion link: https://youtu.be/hOtk-S9UMtM

The topic for the study group scheduled for **25th August** will be announced at a later date.

For further information regarding the Study Group, contact Peter Harvey petermh@hermanus.co.za

Observing.

Optimal dates for **Aug 2026**:

SUGGESTED EVENING OBSERVATION WINDOWS
(Lunar observations notwithstanding)

Date		*Moon*	*Dusk end*
Aug 2	*Rises*	**21h58 (88%)**	**19h13**
to **Aug 16**	*Sets*	**22h24 (18%)**	**19h20**

Moonwatch: A few days either side of **First Quarter** (20th Aug).

Look out for the partial lunar eclipse at 6:30am on 28-Aug when 93% of the moon will be in shadow.

Refer to Peter Harvey's excellent "Skynotes" for a summary of Astronomical Phenomenon forecast for the month.

Outreach

The Outreach Team were delighted to take delivery of a ZWO SeeStar S30 pro smart telescope in July. This instrument is capable of taking high-quality images after just a few minutes use and is remarkably easy to operate. It is expected to be an indispensable educational tool for use in the Outreach and Global Network Survey projects. The HAC plans to loan the telescope to the Lukhanyo Primary School Science Club (LSC) under the supervision of their science teacher, Zimkhitha Buyile. Members of the LSC will learn how to use the instrument, write formal reports and give presentations of their work on a regular basis. Demonstration of the telescope to other schools in the Overberg will be given in due course.

Above: Derek and Pierre setting up the ZWO SeeStar s30 pro Smart Telescope.
Right: Images taken by them of the Sun and of the Omega Cluster.

The HACC are extremely grateful to André Nel of the ASSA for agreeing to partly sponsor this initiative and to Pierre de Villiers for his vision and commitment in making this project possible.

Projects and Maintenance

Work on refurbishing the Stellar Evolution panel was completed this month, and the new plaque was unveiled at the GPAED by Derek Duckitt, Pierre de Villiers and Deon Krige during a ceremony on 15th July. Our thanks to those members of the HAC that came along to witness the event.

Above: Unveiling of the Stellar Evolution plaque at the GPAED: 15-Jul-2026

Astronomy for Beginners

The HAC launched an Astronomy for Beginners Group in July. The Group is intended for members who have little to moderate technical background but who wish to improve their knowledge in the basics of astronomy. The aim will be to encourage members to set aside a little time each week to observe the night sky and to become competent at recognising the brighter stars, constellations and planets. The Group is free, and open to all members of the HAC. The third 'High-Lights' newsletter will be distributed shortly. Please contact the Secretary if you wish to be included on the distribution list.

ASSA

From Tim Cooper

The link to the latest Comet, Asteroid and Meteor Section:

https://assa.saao.ac.za/wp-content/uploads/sites/23/2026/06/ASSA-CAMNotes-2026-Number-3.pdf

MNASSA

The Monthly Notes of the Astronomical Society of Southern Africa are available on:

http://www.mnassa.org.za/

ASSA Shallow Deep Sky Bulletin

The latest Shallow and Deep Sky Bulletin by the ASSA Director, Colin Steyn, is now available for download from https://assa.saao.ac.za/publications/deep-sky

Astronomy News July 2026 continued overleaf…

ASTRONOMY NEWS July 2026

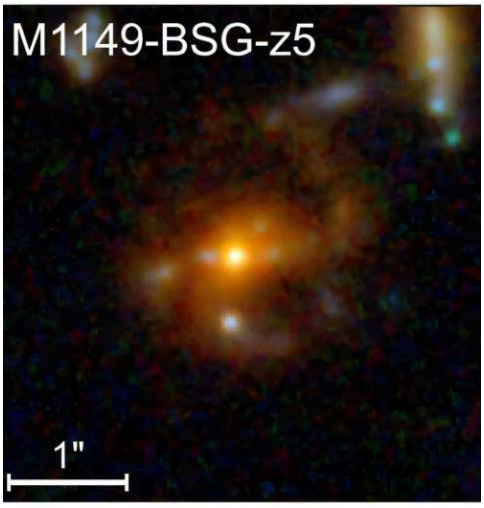
Compiled by Pieter Kotzé

JULY ASTRONOMY PICTURE

The mid-infrared view of Centaurus A from NASA's James Webb Space Telescope reveals dusty structures and hidden activity within the nearby, active galaxy. Credits: Image: NASA, ESA, CSA, STScI; Image Processing: Alyssa Pagan (STScI), Joseph DePasquale (STScI), Macarena Garcia Marin (ESA Office at STScI)

Centaurus A is 11 million light-years away from Earth, relatively close in cosmic terms. Yet, unlike most nearby galaxies, it is very active, making it a powerful laboratory for understanding how galaxies and black holes grow and evolve together. At its core sits a supermassive black hole actively feeding on surrounding material. As it does, the black hole launches powerful jets and releases enormous amounts of energy, shaping the galaxy around it. At the same time, Centaurus A bears the scars of a dramatic past: a major collision with another galaxy roughly 2 billion years ago. The aftermath of that merger is still visible today in its unusual structure and ongoing star formation. Visible-light observations from NASA's Hubble Space Telescope could not reveal the central region where dust blocked the view, while NASA's retired Spitzer Space Telescope revealed large-scale structures in the infrared without resolving individual stars. Now, Webb brings both clarity and depth, exposing the galaxy's inner workings star by star. Webb's mid-infrared vision highlights the galaxy's rich dust structures, which glow in intricate shapes that surprise and even perplex astronomers. A warped, parallelogram-like band cuts across the galaxy's centre, while wisps of material stretch outward like cosmic clouds. An S-shaped feature, most notable in the image from Webb's MIRI (Mid-Infrared Instrument), is also unusual and invites questions that need further study to answer. What created this shape? How does the black hole influence it? Is it influenced by merger-induced star formation?

JWST discovers a new barred spiral galaxy

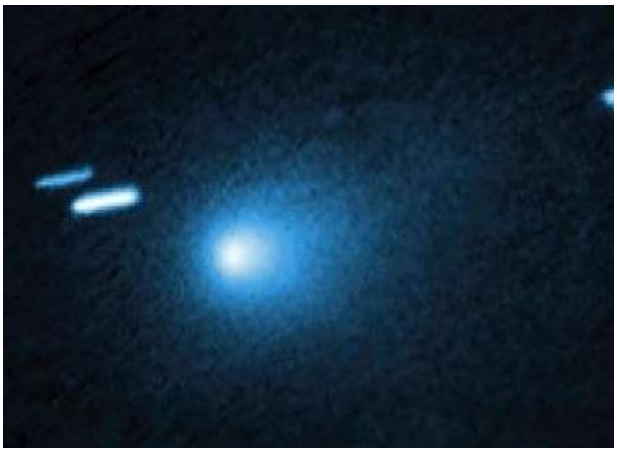


Composite false-colour image of M1149-BSG-z5, created with JWST imaging data taken in F090W+F115W+F150W (blue), F200W+F277W+F300M (green), and F356W+F410M+F444W (red). Credit: Wang et al., 2026.

An international team of astronomers reports the discovery of a new massive barred spiral galaxy. The newfound galaxy, designated M1149-BSG-z5, was identified using the James Webb Space Telescope (JWST. For astronomers, bars are important structures in galaxies, highly related to galaxy secular evolution. Although bars are common in nearby disk galaxies, at high redshifts, the cosmic environment is drastically different from the local universe, and bar structure formation is expected to be suppressed. One of the tools that has helped uncover many of these high-redshift barred galaxies is JWST. Observations with this space telescope have found that barred galaxies

emerge as early as a redshift of about 4.0, with observed fractions of 3–7% at a redshift of 3.5. The newfound galaxy M1149-BSG-z5 has a redshift of 5.1 and hosts a stellar bar with a length of approximately 14,700 light-years. This makes it the highest-redshift barred galaxy known to date. According to the study, M1149-BSG-z5 has an effective radius of about 8,500 light-years, and its spiral arms extend to a radius of some 17,900 light-years. The mass of the galaxy was estimated to be 28 billion solar masses, and its star-formation rate was found to be at a level of 144 solar masses per year. https://phys.org/news/2026-07-jwst-barred-spiral-galaxy.html

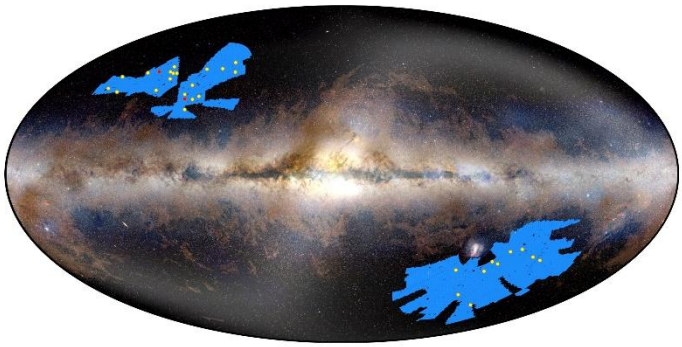
Comet from another star has a composition unlike anything else in our solar system



An image of 3I/Atlas from the Hubble telescope shows the teardrop-shaped cocoon of dust emanating from its solid, icy nucleus. Credit: NASA, ESA, David Jewitt (UCLA); Image Processing: Joseph DePasquale (STScI)

Astronomers have revealed new details about the makeup and age of a visiting comet that was born around a distant star. They conclude that the composition of 3I/Atlas is strikingly different from any object found in our solar system. A trio of recently published studies shed light on the origins of this exotic comet. 3I/Atlas appears to have been born in a cold environment, possibly around 12 billion years ago. The comet is an interstellar object (ISO), meaning an asteroid or comet that originated outside the solar system. It is the third such object found, after 1I/'Oumuamua and 2I/Borisov. It was discovered almost exactly one year ago, traveling inbound on a trajectory that has taken it through the inner solar system and out the other side. These distant origins make ISOs incredibly interesting to astronomers because they are physical pieces of other planetary systems, delivered to us on galactic tides so they can be studied from the comfort of our own solar system. As a comet, 3I/Atlas contained frozen ices that "sublimated"—turned directly from a solid to a gas. These escaped (outgassed) from the comet as it was heated by the sun, creating a visually spectacular coma (bright atmosphere surrounding the object) and tail. https://phys.org/news/2026-07-comet-star-composition-solar.html

Euclid discovers the most ancient quasars in the universe

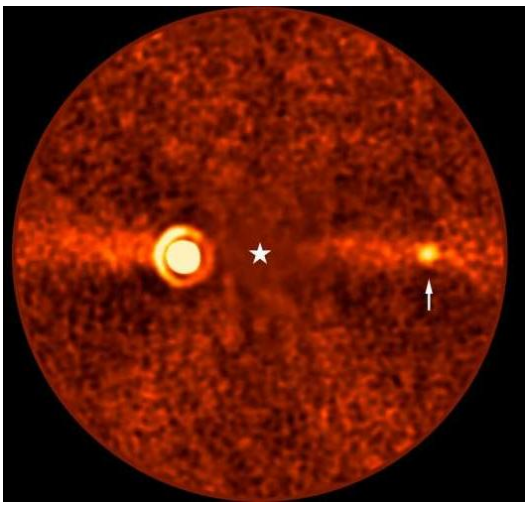


This graphic shows the location of the 31 newly discovered quasars (yellow dots) by the European Space Agency's Euclid telescope, and the mission's survey footprint in August 2025 (blue area). The locations of the farthest found quasars are shown as red dots. The farthest quasar is the one on the right and is named EUCL J172902.75+641018.1 (redshift of 7.77), and the second-farthest (the red dot on the left) is named EUCL J125308.55+705432.3 (redshift of 7.69). This all-sky view is overlaid on ESA Planck's map from 2014, with the bright horizontal band corresponding to the plane of our Milky Way galaxy, where most of its stars reside are marked in blue, indicating Euclid's survey footprint in August 2025. In these regions, yellow and red dots show the locations of the quasars. Credit: ESA / Euclid / Euclid Consortium / NASA / Planck Collaboration / A. Mellinger; Acknowledgment: Jean-Charles Cuillandre, João Dinis

The European Space Agency's Euclid space telescope has discovered 31 of the most ancient quasars ever found. Two of these giant and dazzling galaxy cores, powered by gargantuan black holes, are the earliest quasars yet observed in cosmic history. They shone with the light of a trillion suns when the universe was 670 million years old—just 5% of its current age. Quasars represent a brief phase in a galaxy's life during which large amounts of material spiral into the central supermassive black hole, releasing enormous amounts of energy. In this phase, the galaxy's nucleus shines more brightly than anything else in the universe, often outshining the rest of its host galaxy by hundreds to thousands of times. We've been hunting for the universe's very first quasars for decades. These objects reveal what was happening during the earliest days of the cosmos,

including how the first supermassive black holes and galaxies took shape. However, quasars from this time are difficult to find. They're rare because few galaxies have yet had time to grow big enough, and their primordial light is both faint and easy to confuse with that from stars lying closer to us. Euclid, launched in 2023, is digging deeper into this mystifying part of ancient cosmic history—with exciting results. The telescope has now discovered an unprecedented 31 new quasars in the early universe, pushing back to a time when the cosmos was just 5% of its current age. https://phys.org/news/2026-07-euclid-ancient-quasars-universe.html

Faintest planet ever imaged from Earth found after more than 10 years of hide-and-seek

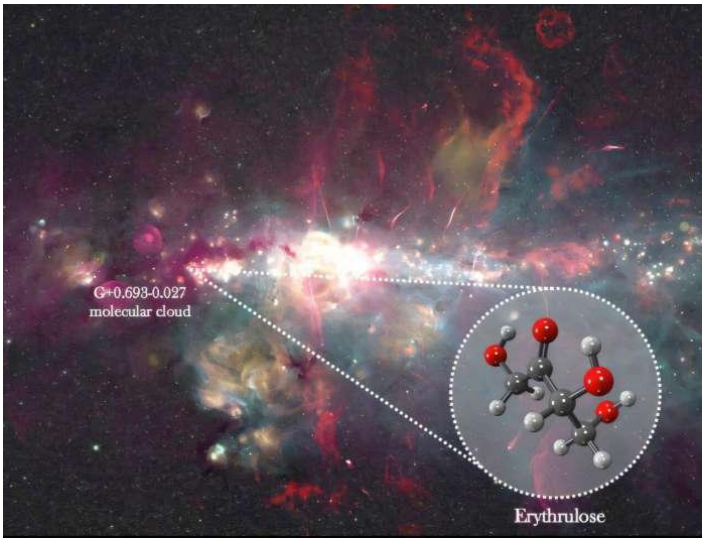


This image, taken with ESO's Very Large Telescope (VLT) shows Beta Pictoris d, a new planet found orbiting the star Beta Pictoris. The star is at the centre of the frame, and was subtracted when processing the data, revealing the environment around it. The new planet, indicated with an arrow, is the third one found around this star. The other two are Beta Pictoris b — the bright source to the left, and Beta Pictoris c, orbiting much closer to the star and not seen here. The image was taken with the ERIS instrument at the VLT. Based on its infrared brightness and color, the new planet appears to be a gas giant, about 2.4 times more massive than Jupiter. The diffuse horizontal band in this image is a debris disc around the star, seen here edge-on, the leftover material of planetary formation. Credit: ESO/B. Sutlieff, M. Bonse et al.

A team of astronomers has discovered a third planet orbiting the star Beta Pictoris. The new planet, Beta Pictoris d, is 100 times fainter than Beta Pictoris b—the first planet discovered in the same system—and is among the lightest exoplanets ever imaged from the ground. After spotting the planet using the European Southern Observatory's Very Large Telescope (ESO's VLT), the team found it had been hiding in archival observations spanning more than a decade. "This was a serendipitous discovery," says Ben Sutlieff, co-lead of the study published today in *The Astrophysical Journal Letters* and an astronomer at the University of Edinburgh, United Kingdom. "We initially wanted to look more at a known planet in the system, Beta Pictoris b, to see how it changed over time," he adds. However, when the team analyzed images of the system, they noticed something else, separated from Beta Pictoris b, that led them down an entirely new path. https://phys.org/news/2026-07-faintest-planet-imaged-earth-years.html

Study reports the first detection of a sugar in interstellar space

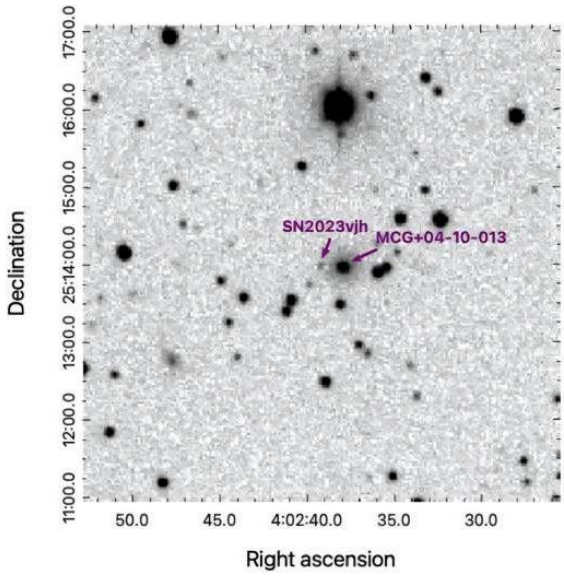
Sugars are key biomolecules in living organisms, as they form the backbone of DNA and RNA and play a fundamental role in metabolic processes. In theories of the origin of life, sugars are also essential for the synthesis of the first nucleic acids. Despite their importance, one of the major questions in origin-of-life research is how the first sugars formed on Earth, since laboratory experiments show that they do not form in sufficient quantities under prebiotic conditions. Sugars such as ribose and glucose have previously been detected in meteorite and asteroid samples, suggesting that some of these molecules may have originated in the primordial molecular cloud from which our solar system formed. However, until now, no sugar had ever been directly detected in the interstellar medium.



Composite image from the Galactic Center. Green and yellow: 8 µm and 24 µm emission observed with Spitzer (Churchwell et al. 2009; Carey et al. 2009). Red: 20 cm emission imaged with MeerKAT (Heywood et al. 2019, 2022) and the Green Bank Telescope (GBT; Law et al. 2008). Image adapted from Henshaw et al. (2023; 10.48550/arXiv.2203.11223) and Longmore et al. (2026; 10.48550/arXiv.2602.20340). Credit: Ashley Barnes/Izaskun Jiménez-Serra/Juan García de la Concepción

An international team led by CAB researcher Izaskun Jiménez-Serra has now identified the first sugar in interstellar space: erythrulose. This molecule is the only possible four-carbon ketose, and on Earth, it is commonly found in raspberries and sunless tanning products. Erythrulose was detected toward the molecular cloud G+0.693−0.027, located near the center of our galaxy, the Milky Way. The discovery was made possible by ultrasensitive, broadband spectroscopic surveys carried out with the 40-m Yebes radio telescope and the 30-m telescope of the Institute for Radio Astronomy in the Millimeter Range (IRAM). https://phys.org/news/2026-07-sugar-interstellar-space.html

Observations investigate the nature of a peculiar supernova



The field of the SN 2023vjh and its host galaxy MCG+04- 10-013. The image is taken from the ATLAS RC2 survey (m17 field), retrieved through the DS9 data server interface. Credit: arXiv (2026). DOI: 10.48550/arxiv.2607.08821

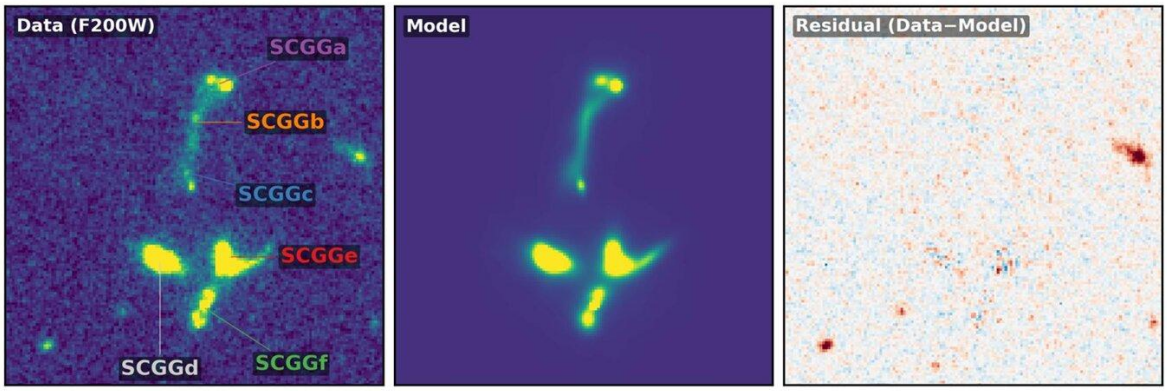
An international team of astronomers has performed follow-up observations of a peculiar Type Ia supernova designated SN 2023vjh. Supernovae (SNe) are powerful, luminous stellar explosions. They are important to the scientific community because they offer essential clues about the evolution of stars and galaxies. In general, SNe are divided into two groups based on their atomic spectra: Type I (no hydrogen in their spectra) and Type II (showcasing hydrogen spectral lines). Type Ia supernovae (SN Ia) are found in binary systems in which one of the stars is a white dwarf. Stellar explosions of this type also offer essential clues about the evolution of stars and galaxies. The supernova is possibly associated with MCG+04-10-013—an elliptical galaxy at a distance of some 271 million light-years from Earth. The explosion took place approximately 22,000 light-years from the center of this galaxy. Furthermore, measured expansion velocities and pseudo-equivalent widths confirm that SN 2023vjh is an extremely cool event. In addition, late-phase near-infrared spectra of the supernova at three epochs reveal absorption features of calcium, iron and cobalt, complementing the optical data, as well as the absence of the H-band break feature, which represents a sharp drop in flux caused by the onset of iron-peak elements. These results show that SN 2023vjh is an unusually faint, fast-declining 91bg-like supernova. Its systematically fainter light curves, despite the lack of clear host-galaxy extinction signatures, make it a distinctive case within this subclass. https://phys.org/news/2026-07-nature-peculiar-supernova.html

Dead stars in our cosmic backyard: Astronomers spot four white dwarfs hiding under our noses

Researchers at the University of Warwick and the University of Colorado Boulder have directly observed, for the first time, four white dwarfs in binary star systems in our nearby region of space. These stellar binaries are all within 65 light-years of Earth, and one contains the ninth-closest white dwarf to the sun. The four systems each include a red dwarf companion—a larger, brighter star—making the systems appear to be single-star systems. The new results, published in *MNRAS*, show that each of these nearby red dwarfs hosts a hidden

white dwarf companion. First author Dr. Mairi O'Brien, a research fellow at the University of Warwick, said, "Nearby isolated white dwarfs are usually easy to find, but we couldn't see these four stars directly in visible wavelengths because their red dwarf companions were drowning out their light. It's a reminder that even in our own cosmic neighbourhood, we can still find surprises if we look in the right way, at the right wavelengths." These four new white dwarfs have allowed researchers to update the local white dwarf census within 20 parsecs (65 light-years). Crucially, population models had previously predicted that roughly four to five closely orbiting white dwarf-red dwarf pairs should exist, and the team found exactly four, comparable to the theoretical work. https://phys.org/news/2026-07-dead-stars-cosmic-backyard-astronomers.html

Astronomers catch massive galaxy assembling piece by piece 1.2 billion years after Big Bang



Morphological decomposition via multi-component Sérsic fitting in F200W. From left to right: science image, best-fit model, and normalized residual. Credit: Ronaldo Laishram et al., arXiv (2026). DOI: 10.48550/arXiv.2607.11182

Astronomers have discovered a remarkably tiny group of six young galaxies just 1.2 billion years after the Big Bang. This may be a rare glimpse of how some of the universe's largest galaxies formed. The widely accepted cosmological model of the universe known as the Lambda Cold Dark Matter Model suggests that galaxies primarily form hierarchically through mergers. Using deep JWST imaging and slitless spectroscopy from the SAPPHIRES survey, the team found the group's six galaxies confined to a small patch of sky, just 16,000 parsecs (about 52,000 light-years) across—roughly half the diameter of the Milky Way. Measuring the stellar mass and individual masses, the team found that three galaxies sit at or above the typical star-formation rate for their epoch, with one forming stars notably faster than expected. All six galaxies show disturbed and irregular shapes, aligning with the expectations from ongoing gravitational interactions or a merger scenario. Star-formation maps hinted that gas may be funneling inward toward the cores of some members. This may suggest inside-out growth in some of the members. The most massive galaxy, however, shows a tentative opposite pattern: quieter in the center, more active in the outskirts. https://phys.org/news/2026-07-astronomers-massive-galaxy-piece-billion.html

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COMMITTEE MEMBERS

Derek Duckitt	(Chairman, Speaker Selector, website editor, Cosmology SIG co-ordinator)	082 414 4024 derek.duckitt@gmail.com
Pierre de Villiers	(Vice-chairman, Speaker Selector, Projects and Outreach)	082 854 2277
Elaine Sykes	(Treasurer)	083 286 2683
Pete Kogel	(Secretary, Membership, “Southern Cross”, Observing co-ordinator, Beginner’s Astronomy)	082 708 0049 pete.kogel@outlook.com

Mick Fynn	(Educational outreach)	082 443 0848

Non-committee members with portfolio:

Peter Harvey	(“Skynotes”, Study Group SIG co-ordinator)
Deon Krige	{GPAED project, Astro-photography SIG coordinator)
Pieter Kotzé	(“Southern Cross” Astronomy News, Speaker Selector)