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

"The Southern Cross"

The Hermanus Astronomy Centre Monthly Newsletter

January 2025

MONTHLY MEETINGS

These meetings are scheduled for the **Third Tuesday** of each month except December.

Our last **Monthly** meeting was held virtually on Zoom on **Tuesday 19th November**. ***"MeerKAT's View of Galaxy Evolution"*** was presented by **Dr J Delhaize** of UCT.

For those who would like to revisit this excellent and most worthy presentation, herewith the YouTube recording link:

https://www.youtube.com/watch?v=sJfS4O6ZJEU&ab_channel=DerekDuckitt

Our next **Monthly Meeting** is scheduled for **Tuesday 21st January**:

Prof Hennie Mouton will present ***"A Short History of the so-called Mini-Moon Of 2024"***

Hennie's presentation will include discussion on the sensitivity of the trajectory and its potential future return. It will be done by making use of a solar system simulation developed by the speaker over many decades. This specific investigation led him to improve the accuracy of his simulation significantly.

This "second moon" has received much media attention recently. Please join us at Onrus Manor for this "not to be missed" opportunity to hear and meet a specialist in the field of planetary orbits.

SPECIAL INTEREST GROUP ACTIVITIES

Cosmology

These meetings are scheduled for the **First Tuesday** of each month except January.

In the series "THE ENTIRE HISTORY OF THE UNIVERSE", Episode 33 was our video for **December 3rd**:

"What is the Most Powerful Thing in the Universe?"

The YouTube episode link:

https://www.youtube.com/watch?v=CuRicHU9sOc&list=PLROBLlvnR7BEF9b1NOvRf_zhboibmywJb&index=33&t=71s&pp=iAQB

The link to the discussion video:

https://www.youtube.com/watch?v=tZI3oRmp6bk&ab_channel=DerekDuckitt

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

---

Study Group

Scheduled for the **Last Tuesday** of each month except December.

Our last meeting was held on **November 26th**, the topic, ***"AI Creativity: Genius or Gimmick?"***

YouTube video link: https://www.youtube.com/watch?v=wU49MKIhMRU

Discussion link: https://www.youtube.com/watch?v=e8l2PVc6gTw&ab_channel=DerekDuckitt

Our next meeting is scheduled for **Tuesday January 28th**. The topic is yet to be decided.

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

---

Observing

This section includes suggested dates for observation of astronomical phenomena.

Optimal dates for **January 2024**:

SUGGESTED EVENING OBSERVATION WINDOWS

(Lunar observations notwithstanding)

Date	*Moon*		*Dusk end*
January 20	*Rises*	**23h27 (59%)**	**21h36**
to **January 31**	*Sets*	**21h17 (5%)**	**21h25**

Skynotes - Moon feature *Marius Hills with Cave* – Avani Soares

Skynotes - Main feature *"No 'Scope Required"*

Moonwatch Within a few days either side of the **First Quarter** (Sunday January 7).

The Sun The Sun and Auroral Activity: https://www.spaceweatherlive.com/en/solar-activity.html

Meteors There are no significant meteor showers predicted for January 2025

Comets From **Tim Cooper** - CAMNotes 2024 No.4 is online:

https://assa.saao.ac.za/wp-content/uploads/sites/23/2024/09/ASSA-CAMnotes-2024-Number-4.pdf

---

MNASSA

(Monthly Notes of the Astronomical Society of Southern Africa) http://www.mnassa.org.za/

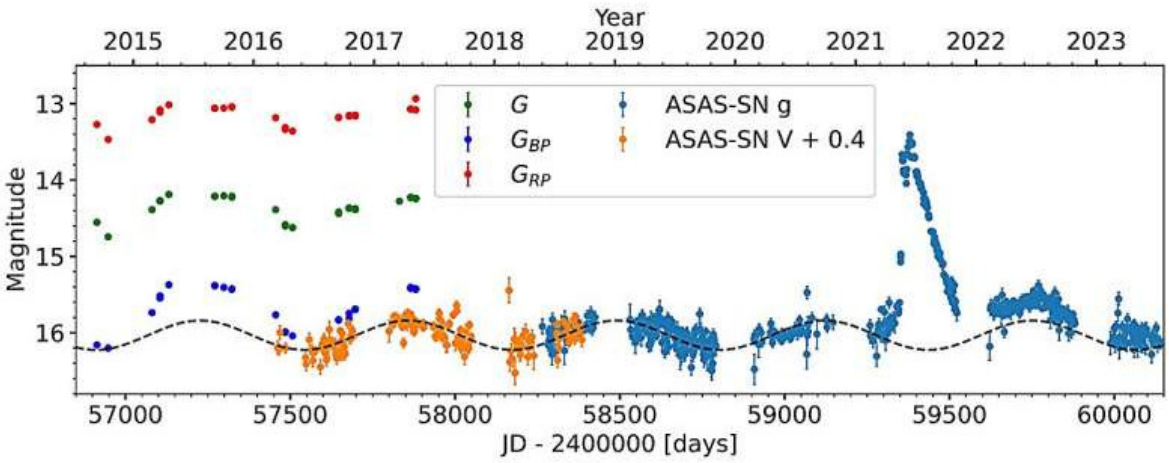
---

overleaf…

ASTRONOMY NEWS: December 2024

Compiled By Pieter Kotzé

TCP J1822 is a symbiotic star, observations find

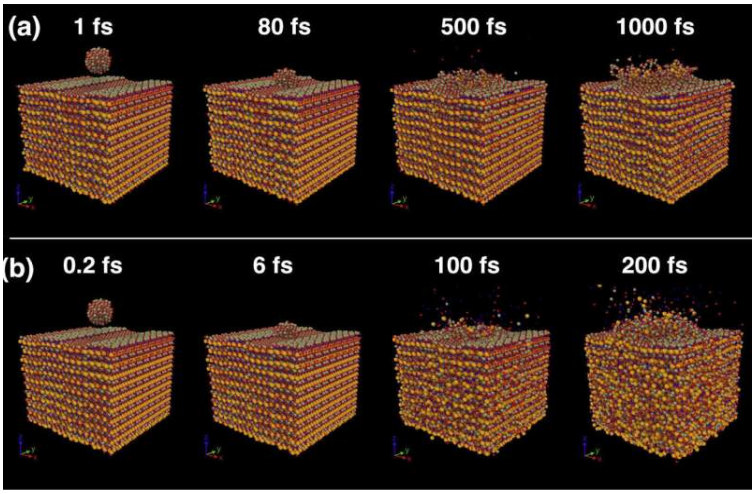


Light curve of TCP J1822. Credit: Monthly Notices of the Royal Astronomical Society (2023). DOI: 10.1093/mnras/stad3121

Using the Himalayan Chandra Telescope (HCT), Indian astronomers have conducted spectroscopic observations of a star discovered in 2021, known as TCP J1822. Results of the observational campaign indicate that TCP J1822 is a symbiotic star. The finding was published in the December issue of the *Monthly Notices of the Royal Astronomical Society*. Symbiotic stars, which are among the widest interacting binaries, showcase dramatic, episodic changes in the spectra of their light because one of the pair is a very hot, small star, while the other is a cool giant. These systems may deliver essential information for researchers studying aspects of stellar evolution. Located some 26,000 light years away, TCP J18224935-2408280, or TCP J1822 for short, was discovered on May 19, 2021 during an outburst. It is estimated that the outburst started between May 13 and 16, reaching the first maximum in about five days, which was followed by a 10-day-long slight decrease of brightness by 0.5 mag. https://phys.org/news/2023-12-tcp-j1822-symbiotic-star.html

Ryugu asteroid samples indicate damage from microscopic meteoroid bombardment

Asteroids are remnants of the formation of our solar system, and while many can be found within the asteroid belt between the orbits of Mars and Jupiter, some cannot. One such object is asteroid (162173) Ryugu, a 1 km-wide near-Earth asteroid believed to have originated in the asteroid belt. However, it has since moved to cross Earth's orbit, located 300 million km from our planet. The asteroid is constantly bombarded by debris in space and new research, published in *The Astrophysical Journal*, has suggested that even microscopic particles can have damaging effects.



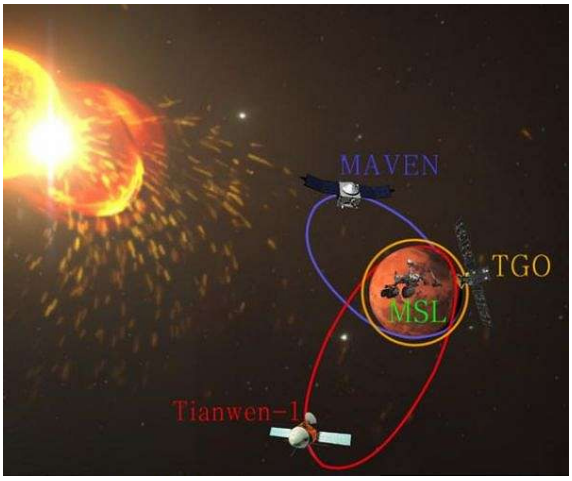
Snapshots of micrometeoroid bombardment simulations at different timescales with a velocity of 20 km/s (a) and 300 km/s (b). Dot colour represents elements of serpentine as follows: magnesium (yellow), silica (gray), oxygen (red) and hydrogen (blue). Fs is femtoseconds, representing one quadrillionth of a second. Credit: Shoji et al., 2024.

Japan's Aerospace Exploration Agency (JAXA) launched the Hayabusa2 spacecraft to conduct remote sensing and sample collection on the

asteroid in 2018 and 2019. Laboratory work on these samples identified a distinct pattern of dehydration of phyllosilicates (sheet-like silicate minerals, such as magnesium-rich serpentine and saponite), whereby the bonds between the included oxygen and hydrogen atoms are broken.

https://phys.org/news/2024-11-ryugu-asteroid-samples-microscopic-meteoroid.html

Scientists map complete energy spectrum of solar high-energy protons near Mars



The SEP particle event on February 15, 2022 was simultaneously detected by the Chinese Tianwen-1 orbiter, TGO, MAVEN, and the Curiosity rover on the surface of Mars.

Scientists have achieved a major milestone in Martian space research by constructing the first complete energy spectrum of high-energy solar protons during a solar eruptive event. This effort sheds light on the radiation environment around Mars and has important implications for future Mars exploration. The research was a collaborative effort involving the University of Science and Technology of China, the Institute of Modern Physics (IMP) of the Chinese Academy of Sciences (CAS), the Lanzhou Institute of Physics, and the University of Kiel in Germany. Their findings have been published as a cover article in 'Geophysical Research Letters'.Solar energetic particle (SEP) events, triggered by solar eruptions, are among the most intense space weather phenomena. They lead to sudden surges in high-energy charged particles, posing risks to spacecraft and astronauts. Unlike Earth, Mars lacks a global magnetic field and has a thin atmosphere, making its surface especially susceptible to high-energy particles and their secondary interactions. Understanding these SEP events is critical for ensuring the safety of future Mars missions.

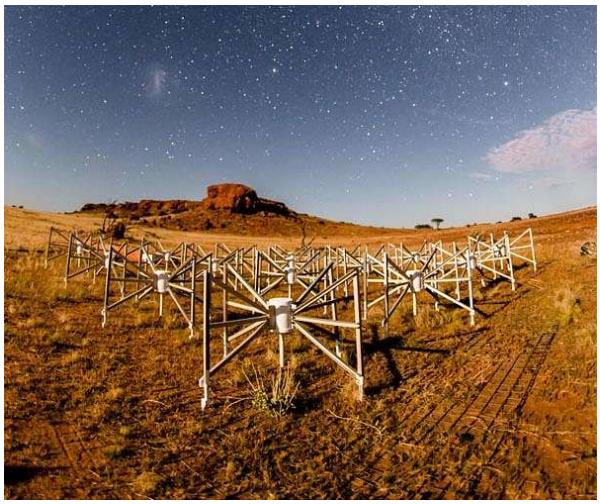
https://www.spacedaily.com/reports/Scientists_map_complete_energy_spectrum_of_solar_high_energy_protons_near_Mars_999.html

Novel supernova observations grant astronomers a peek into the cosmic past

An international team of researchers has made new observations of an unusual supernova, finding the most metal-poor stellar explosion ever observed. This rare supernova, called 2023ufx, originated from the core collapse of a red supergiant star, exploded on the outskirts of a nearby dwarf galaxy. Results of the study showed that observations of both this supernova and the galaxy it was discovered in are of low metallicity, meaning they lack an abundance of elements heavier than hydrogen or helium. Since the metals produced within supernovae inform their properties, including how stars evolve and die, learning more about their formation can tell astronomers much about the state of the universe when it began, especially since there were essentially no metals around during the time of its birth, said Michael Tucker, lead author of the study and a fellow at the Centre for Cosmology and AstroParticle Physics at The Ohio State University.

https://www.spacedaily.com/reports/Novel_supernova_observations_grant_astronomers_a_peek_into_the_cosmic_past_999.html

Astronomers identify potential source of mysterious stellar signals

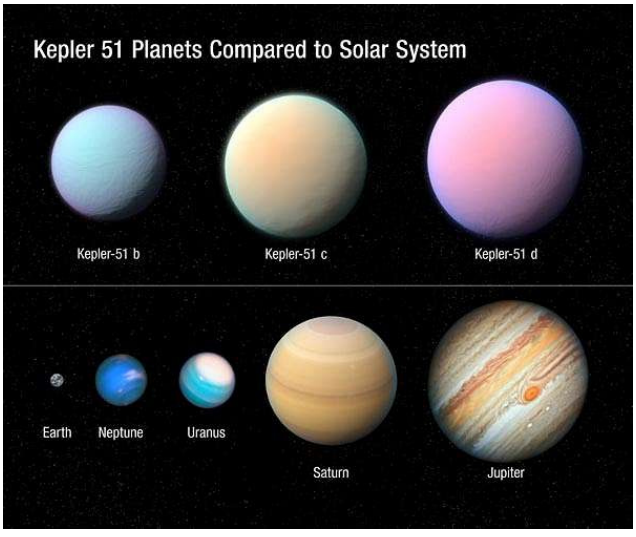


The radio signal was detected in data from the Murchison Widefield Array radio telescope, located at Inyarrimanha Ilgari Bundara, CSIRO's Murchison Radio-astronomy Observatory. Credit: ICRAR/Curtin

Researchers at the Curtin University node of the International Centre for Radio Astronomy Research (ICRAR) have made a record-setting discovery while uncovering clues to a rare cosmic phenomenon known as long-period radio transients. Associate Professor Natasha Hurley-Walker, alongside then-undergraduate Csanad Horvath, identified a unique energy pulse while analyzing archival data from the Murchison Widefield Array (MWA), a precursor to the Square Kilometre Array Observatory (SKAO). The pulse, observed every three hours and lasting 30-60 seconds, represents the longest-period radio transient detected to date. Long-period radio transients, a relatively recent discovery in astrophysics, have puzzled scientists with their unknown origins. The Curtin researchers now believe they have pinpointed the source of this mysterious signal, offering valuable insights into the phenomenon. Previous detections have been challenging due to the dense stellar environments within our galaxy, where numerous stars obscure the origins of the emissions. Hurley-Walker likened the situation to the overwhelming visual of stars in 2001: A Space Odyssey, remarking, "The long-period transients are very exciting, and for astronomers to understand what they are, we need an optical image. The newly identified transient, named GLEAM-X J0704-37, stands out by its location on the outskirts of the Milky Way, in a sparse region of space within the Puppis constellation, about 5,000 light-years away. This new discovery lies far off the Galactic Plane, so there are only a handful of stars nearby and we're now certain one star system, in particular, is generating the radio waves," said Hurley-Walker. The precise location was determined using the MeerKAT telescope in South Africa. Follow-up observations with Chile's SOAR observatory identified the system's central star as a low-mass M dwarf, a stellar type constituting 70% of the Milky Way's stars but invisible to the naked eye.

https://www.spacedaily.com/reports/Astronomers_identify_potential_source_of_mysterious_stellar_signals_999.html

New planet in Kepler-51 system unveiled with JWST observations



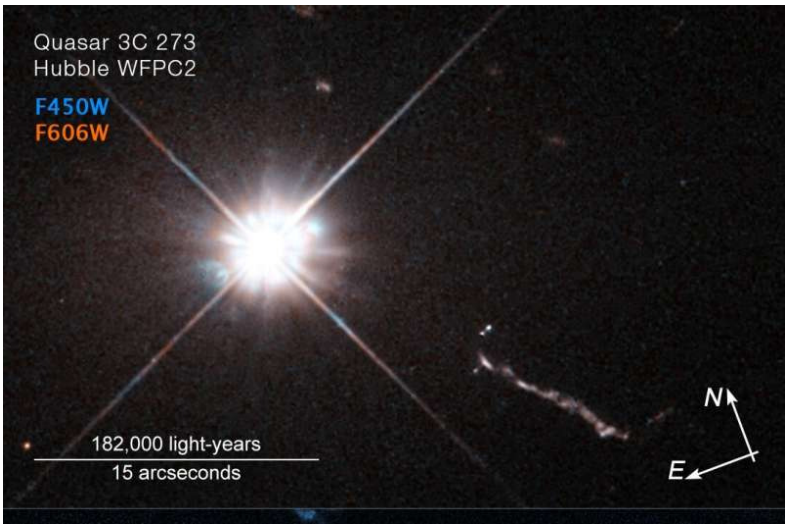
Astronomers have identified a fourth planet in the Kepler-51 system, a discovery led by researchers at Penn State and Osaka University using data from NASA's James Webb Space Telescope (JWST). The system, previously known for its three ultra-low density "super-puff" planets, gained a new dimension as the unexpected orbital behaviour of Kepler-51d revealed the presence of an additional planet. The research team initially aimed to observe Kepler-51d, one of the three super-puff planets, with JWST. However, during their observations, the planet transited its star two hours earlier than predicted by models. "Super puff planets are very unusual in that they have very low mass and low density," explained Jessica Libby-Roberts, a postdoctoral fellow at Penn State. "The three previously known planets that orbit the star, Kepler-51, are about the size of Saturn but only a few times the mass of Earth, resulting in a density like cotton candy." The unexpected timing anomaly led the researchers to hypothesize a gravitational influence from a fourth planet. Transit observations, where a planet passes in front of its star as seen from Earth, help

astronomers determine a planet's size and characteristics. Typically, slight timing variations in these events are caused by gravitational interactions with other planets. The three-planet model of the Kepler-51 system had reliably predicted past transits, but Kepler-51d's deviation signalled the need for a new explanation.

https://www.spacedaily.com/reports/New_planet_in_Kepler_51_system_unveiled_with_JWST_observations_999.html

Hubble takes closest-ever look at a quasar

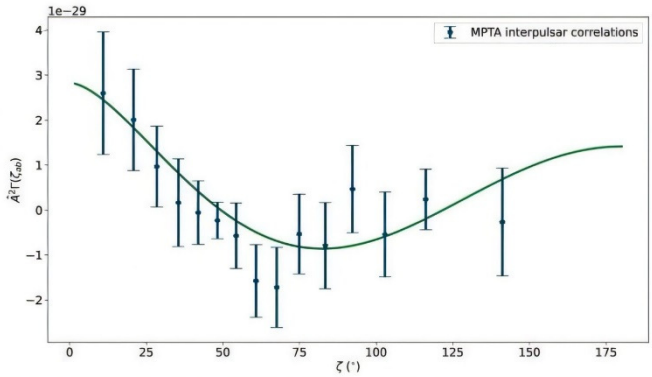
Astronomers have used the unique capabilities of NASA's Hubble Space Telescope to peer closer than ever into the throat of an energetic monster black hole powering a quasar. A quasar is a galactic centre that glows brightly as the black hole consumes material in its immediate surroundings. The new Hubble views of the environment around the quasar show a lot of "weird things," according to Bin Ren of the Côte d'Azur Observatory and Université Côte d'Azur in Nice, France. "We've got a few blobs of different sizes, and a mysterious L-shaped filamentary structure. This is all within 16,000 light-years of the black hole." Some of the objects could be small satellite galaxies around the black hole, and so they could offer the materials that will accrete onto the central super massive black hole, powering the bright lighthouse.



A two-panel image of quasar 3C 273, taken by different Hubble instruments. The top panel is a WFPC2 image of 3C 273. It looks like a bright white car headlight. There's a linear orange-white smoke-like feature stretching to the 4 o'clock position, an extragalactic jet launched from the quasar in the centre of the black hole of an unseen galaxy. Below the title is a colour key showing which filters were used to create the image and which colour is assigned to each filter: F450W is blue, F606W is orange. Compass arrows at bottom right corner show the orientation of the image on the sky; north arrow points in the 11 o'clock direction; east arrow points toward 8 o'clock. A scale bar at bottom left corner is labelled "182,000 light-years" over "15 arc seconds." The STIS coronagraph image in the bottom panel is roughly the same as the WFPC2 image, but in blue shades. A black circle blocks the glare of the quasar. Blue-coloured filamentary material can be seen near the black hole. The extragalactic jet is still visible. Credit: NASA, ESA, Bin Ren (Université Côte d'Azur/CNRS)

https://phys.org/news/2024-12-hubble-closest-quasar.html

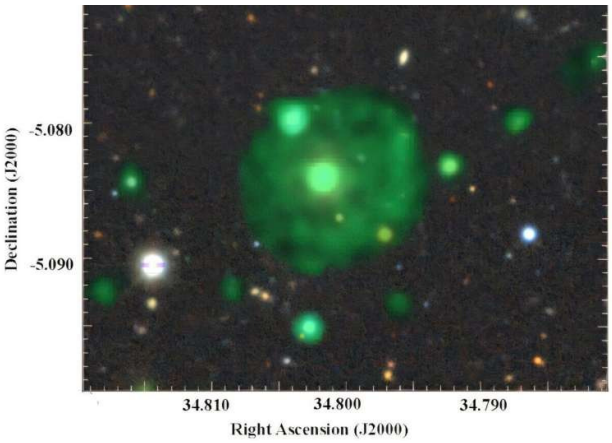
MeerKAT confirms the gravitational wave background of the universe in record time



MeerKAT results showing pulsar correlations across the sky. Credit: Miles, et al

The universe is a turbulent place. Stars are exploding, neutron stars collide, and supermassive black holes are merging. All of these things and many more create gravitational waves. As a result, the cosmos is filled with a rippling sea of gravitational vibrations. While we have been able to directly detect gravitational waves since 2016, gravitational wave astronomy is still in its infancy. We have only been able to observe the gravitational ripples of colliding stellar black holes. Even then, all we can really detect is the final gravitational chirp created in the last moments of merging. We can, however, gather indirect evidence of the cosmic background of gravitational waves. Last year, the North American Nanohertz Observatory for Gravitational Waves (NANOGrav) released their first observations, which were based on millisecond pulsars. https://phys.org/news/2024-12-meerkat-gravitational-background-universe.html

New odd radio circle discovered with MeerKAT telescope



Composite image of ORC J0219-0505 consisting of the MeerKAT Stokes I image (green) superimposed on an RGB optical image from the Legacy Survey Interactive Sky Viewer. Credit: arXiv (2024). DOI: 10.48550/arxiv.2411.17311

Using the MeerKAT telescope, astronomers have discovered a new odd radio circle that appears to be associated with an elliptical galaxy known as WISEA J021912.43–050501.8. The finding, which could help us better understand the nature of this mysterious radio emission phenomenon, is reported in a paper published on the *arXiv* preprint server. The so-called odd radio circles (ORCs) are mysterious gigantic rings of radio waves and their origin is still unexplained. They are generally observed as extragalactic circles of steep-spectrum radio emission, without any corresponding emission at other wavelengths, other than that of the host galaxy. To date, only several such features have been well-defined as ORCs.

https://phys.org/news/2024-12-odd-radio-circle-meerkat-telescope.html

Astronomers close to solving mystery of how universe's giant galaxies formed

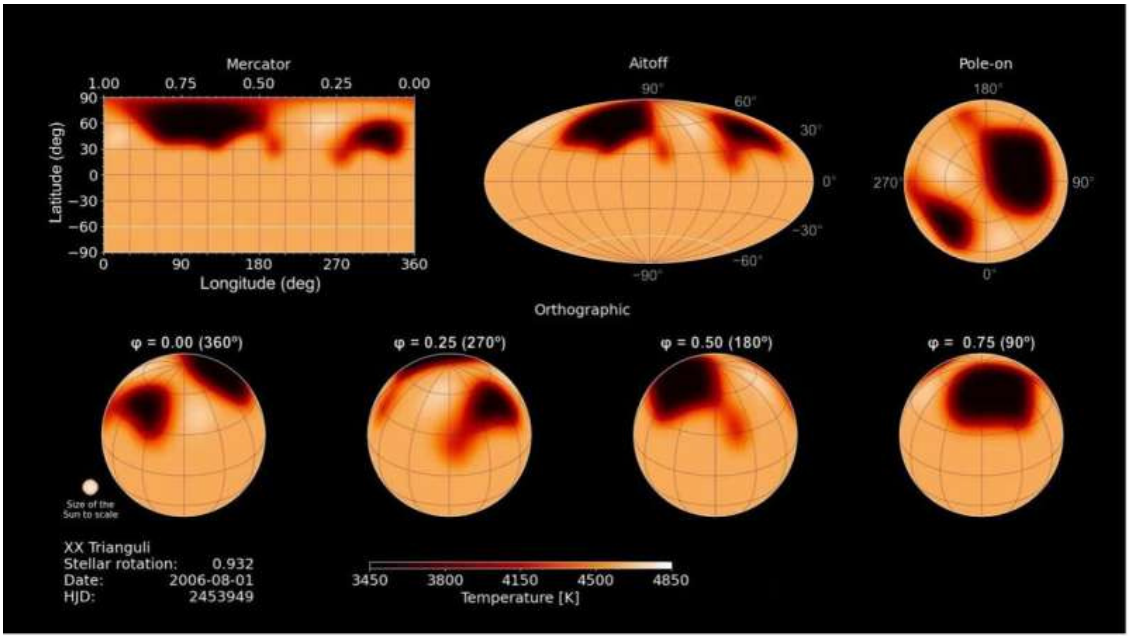
Two antennae galaxies colliding. Credit: NASA

Astronomers say they are close to solving an intergalactic mystery about the creation of the universe's biggest galaxies which has puzzled experts for decades. Scientists have discovered the birth sites of gigantic elliptical galaxies which they claim offer new clues about how they were formed. The creation of these ancient galaxies, which look like bulging footballs compared to our flat disk-like Milky Way, remains a mystery to astrophysicists. But now academics from the University of Southampton, working with experts across the world, say their new study may finally unravel the enigma. Dr. Annagrazia Puglisi from Southampton, who co-authored the research, said it is likely that large flows of cold gas and collisions between galaxies in the early universe created these giant systems.

https://phys.org/news/2024-12-astronomers-mystery-universe-giant-galaxies.html

Starspot activity of the red giant XX Trianguli indicates non-periodic, chaotic dynamo

In a study published in *Nature Communications*, researchers from the Leibniz-Institut for Astrophysics Potsdam (AIP) and the HUN-REN Research Centre for Astronomy and Earth Sciences (HUN-REN CSFK) have reconstructed the temporal changes in the distribution of surface spots on the red giant star XX Trianguli. The research is based on a unique series of spectroscopic observations carried out by the STELLA robotic observatory over 16 years."Sunspots are the most well-known manifestations of solar magnetic activity, which, together with many other phenomena, such as solar flares or the solar cycle, can be linked to the dynamo mechanism operating inside the sun," explains Dr. Zsolt Kővári, scientific advisor at the Konkoly Observatory of the HUN-REN CSFK, and a member of the research team."Starspots are phenomena similar to sunspots, but on the surface of distant stars. However, usually we cannot observe the surface of stars directly. Therefore, we applied an indirect tomographic technique called Doppler imaging to the data of XX Tri,"



Snapshot from the movies showing simultaneously the surface of XX Trianguli in four projection styles (top row from left to right: Mercator-, Aitoff-, and pole-on projection; bottom row: spherical projection at four different rotational phases separated by 90 deg). Each movie is a duration of 3 minutes, available from the publication. Credit: HUN-REN CSFK/Zs. Kővári, MOME/Á. Radványi, AIP/K. Strassmeier

https://phys.org/news/2024-12-starspot-red-giant-xx-trianguli.html

Astronomers measure cosmic electrons at the highest energies to date

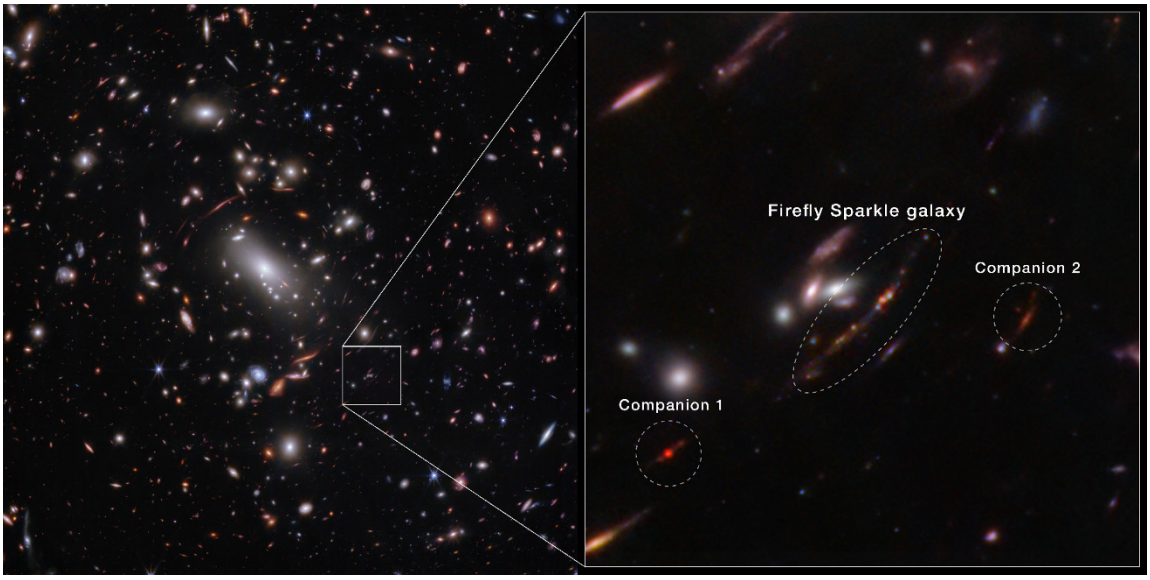
Five telescopes of the H.E.S.S.-collaboration in Namibia are used to study cosmic radiation, especially gamma radiation. With data from 10 years of observations, researchers have now been able to detect cosmic electrons and positrons with an unprecedented energy of more than 10 tera-electronvolts.

The H.E.S.S. observatory, located in the Khomas Highlands of Namibia at an altitude of 1835m, below the southern sky. Credit: Sabine Gloaguen

Since charged particles are deflected in all directions by the magnetic fields in our cosmic neighbourhood, it is difficult to determine their origin. This time, however, the outstanding quality of the measured particle energy spectrum up to the highest energy values opens up new possibilities: The scientists suspect that a pulsar, which may be no more than a few thousand light-years away, could be the source. The universe hosts extreme environments, from the coldest temperatures to the most energetic sources. Extreme objects such as supernova remnants, pulsars or active galactic nuclei produce charged particles and gamma radiation with energies far above those reached in thermal processes such as nuclear fusion in stars.

https://phys.org/news/2024-11-astronomers-cosmic-electrons-highest-energies.html

First Actively Forming Galaxy as Lightweight as Young Milky Way



NASA, ESA, CSA, STScI, Chris Willott (National Research Council Canada), Lamiya Mowla (Wellesley College), Kartheik Iyer (Columbia University)

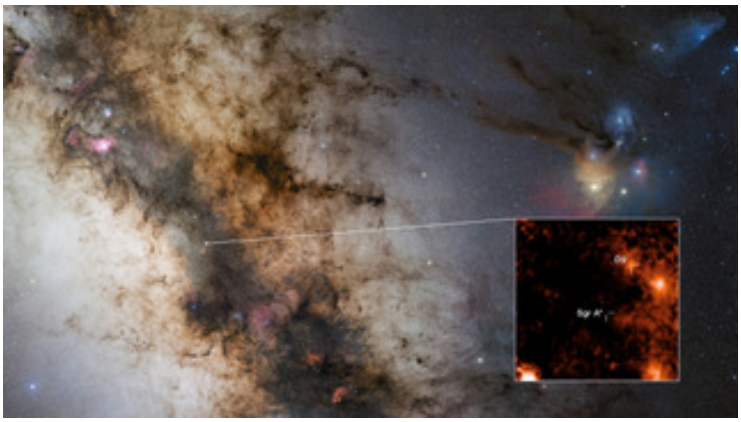
For the first time, NASA's James Webb Space Telescope has detected and "weighed" a galaxy that not only existed around 600 million years after the big bang, but is also similar to what our Milky Way galaxy's mass might have been at the same stage of development. Other galaxies Webb has detected at this time period are significantly more massive. Nicknamed the Firefly Sparkle, this galaxy is gleaming with star clusters — 10 in all — each of which researchers examined in great detail. Webb was able to image the galaxy in crisp detail for two reasons. One is a benefit of the cosmos: A massive foreground galaxy cluster radically enhanced the distant galaxy's appearance through a natural effect known as gravitational lensing. And when combined with the telescope's specialization in high-resolution infrared light, Webb delivered unprecedented new data about the galaxy's contents.

https://science.nasa.gov/missions/webb/found-first-actively-forming-galaxy-as-lightweight-as-young-milky-way/

Astronomers discover 1st binary stars orbiting supermassive black hole at the centre of the Milky Way

"Black holes are not as destructive as we thought. It seems plausible that the detection of planets in the galactic centre is just a matter of time."

Astronomers have discovered the first binary stars orbiting a supermassive black hole. The stellar pairing in question orbits the cosmic titan at the heart of the Milky Way, Sagittarius A*.The binary stars, designated D9, were found in data collected by the Very Large Telescope (VLT), located atop Cerro Paranal, an 8,645-foot-tall (2,635-meter) mountain in Chile's Atacama Desert. By measuring their velocity, the team behind the discovery was surprised to find they were two stars, not one. The fact that these binary stars so near Sgr A* have survived the tremendous gravity of this black hole indicates that these environments may actually be stable enough to allow for the birth of planets, the scientists behind this discovery say.

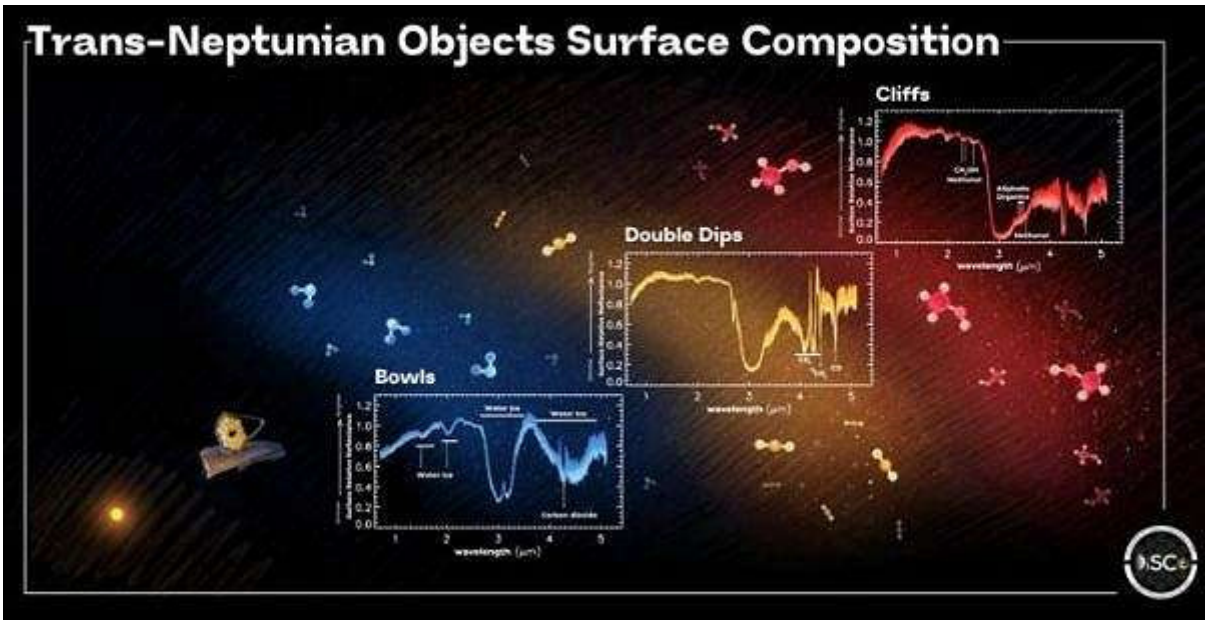


The location of D9 the first binary stars ever seen around the Milky Way's supermassive black hole (Image credit: ESO/F. Peißker et al., S. Guisard)

https://www.space.com/first-binary-stars-sgrA-black-hole

Webb offers best glimpse ever into the icy planetesimals of the early solar system

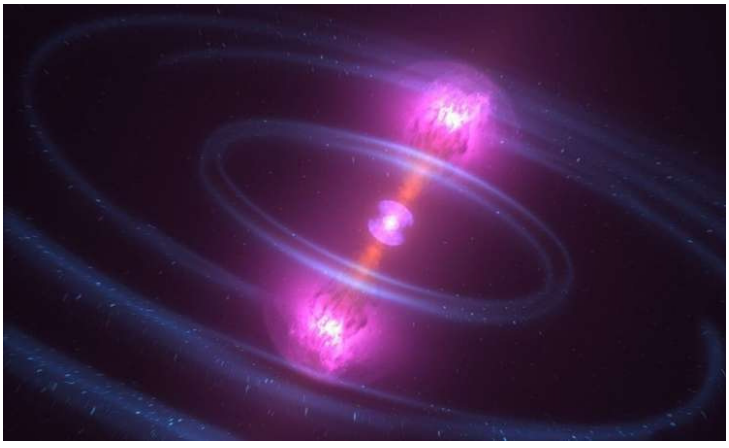
New studies led by researchers at the University of Central Florida offer for the first time a clearer picture of how the outer solar system formed and evolved based on analyses of trans-Neptunian objects (TNOs) and centaurs. The findings, published in Nature Astronomy, reveal the distribution of ices in the early solar system and how TNOs evolve when they travel inward into the region of the giant planets between Jupiter and Saturn, becoming centaurs. TNOs are small bodies, or 'planetesimals,' orbiting the sun beyond Pluto. They never accreted into planets, and serve as pristine time capsules, preserving crucial evidence of the molecular processes and planetary migrations that shaped the solar system billions of years ago. These solar system objects are like icy asteroids and have orbits comparable to or larger than Neptune's orbit.Prior to the new UCF-led study, TNOs were known to be a diverse population based on their orbital properties and surface colours, but the molecular composition of these objects remained poorly understood. For decades, this lack of detailed knowledge hindered interpretation of their colour and dynamical diversity. Now, the new results unlock the long-standing question of the interpretation of colour diversity by providing compositional information.



Artistic representation of the distribution of trans-Neptunian objects in the planetesimal disk, with overlaid representative spectra of each compositional group highlighting the dominant molecules on their surfaces. Credit: Graphic art by William D. Gonzalez Sierra for the Florida Space Institute, University of Central Florida.

https://www.spacedaily.com/reports/Webb_offers_best_glimpse_ever_into_the_icy_planetesimals_of_the_early_solar_system_999.html

HD 65907: The mysterious case of the resurrected star



Credit: NASA's Goddard Space Flight Centre/CI Lab

The star HD 65907 is not what it appears to be. It's a star that looks young, but on closer inspection, it is actually much, much older. What's going on? Research suggests that it is a resurrected star. Astronomers employ different methods to measure a star's age. One is based on its brightness and temperature. All stars follow a particular path in life, known as the main sequence. The moment they begin fusing hydrogen in their cores, they

maintain a strict relationship between their brightness and temperature. By measuring these two properties, astronomers can roughly pin down the age of a star.But there are other techniques, like measuring the amount of heavy elements in a stellar atmosphere. Older stars tend to have fewer of these elements, because they were born at a time before the galaxy had become enriched with them.Going by its temperature and brightness, HD 65907 is relatively young, with an age right around 5 billion years old. And yet it contains very few heavy elements. Plus, its path in the galaxy isn't in line with other young stars, which tend to serenely orbit around the centre. HD 65907 is much more erratic, suggesting that it only recently moved here from somewhere else.https://phys.org/news/2024-12-hd-mysterious-case-resurrected-star.html

ALMA observations explore the nuclear structure of a dusty star-forming galaxy

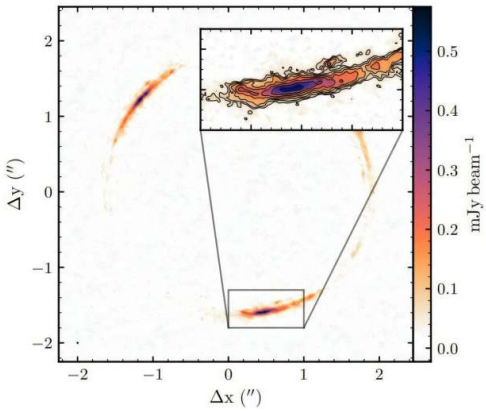
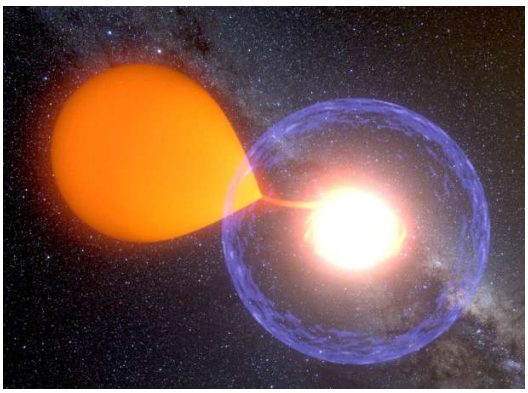


Image of SPT 0538−50 at 350 GHz. Credit: arXiv (2024). DOI: 10.48550/arxiv.2412.03644

Using the Atacama Large Millimeter/submillimeter Array (ALMA), astronomers have observed a dusty star-forming galaxy known as SPT 0538−50. Results of the observational campaign, presented Dec. 4 on the *arXiv* pre-print server, provide more insights into the structure of this galaxy. The so-called dusty star-forming galaxies (DSFGs) are highly obscured galaxies undergoing a period of intense star formation, with star-formation rates reaching even 1,000 solar masses per year. However, although many DSFGs are known, their nuclear structure, which can be essential to better understand the evolution of these galaxies, is still not fully explored.SPT 0538−50 is a DSFG at a redshift of 2.78, with an infrared luminosity of 3.4 trillion solar luminosities. The galaxy has a stellar mass of about 33 billion solar masses and a star-formation rate at a level of 760 solar masses per year.The study found that SPT 0538−50 has an effective radius of approximately 1,950 light years, a Sersic index of 1.2, and a position angle of 4.0. These parameters are consistent with a compact disk, comparable to other known DSFGs.

https://phys.org/news/2024-12-alma-explore-nuclear-dusty-star.html

A new class of cosmic X-ray sources discovered



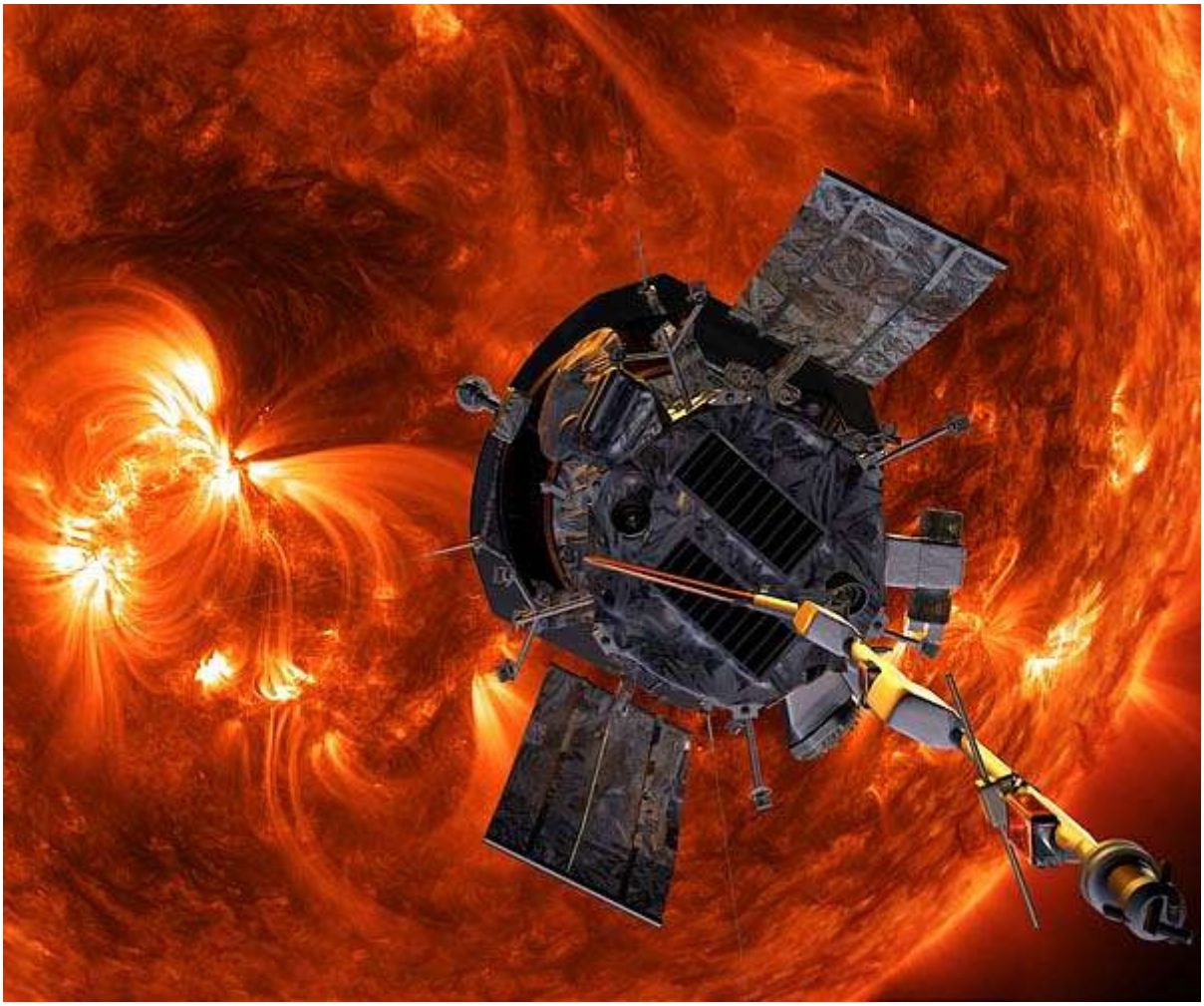
Artist's impression of a classical nova eruption. Credit: Krzysztof Ulaczyk / Astronomical Observatory, University of Warsaw.

An international team of astronomers, led by researchers from the Astronomical Observatory of the University of Warsaw, have identified a new class of cosmic X-ray sources. The findings have been published in *The Astrophysical Journal Letters*. The researchers identified a group of 29 unusual objects in the Magellanic Clouds, the two nearby satellite galaxies of the Milky Way. These objects displayed unexpected behaviour: they exhibited long-duration (typically a few months) outbursts, during which they brightened by 10 to 20 times their usual brightness. While some of these objects exhibited recurring outbursts every few years, others flared up only once during the observation period.

https://phys.org/news/2024-12-class-cosmic-ray-sources.html

NASA probe makes closest ever pass by the Sun

NASA's pioneering Parker Solar Probe made history, flying closer to the Sun than any other spacecraft, with its heat shield exposed to scorching temperatures topping 1,700ºF (930ºC). Launched in August 2018, the spaceship is on a seven-year mission to deepen scientific understanding of our star and help forecast space-weather events that can affect life on Earth. "Right now, Parker Solar Probe is flying closer to a star than anything has ever been before," at 3.8 million miles (6.1 million kilometres) away, NASA official Nicky Fox said in a video.



https://www.spacedaily.com/reports/NASA_probe_makes_closest_ever_pass_by_the_Sun_999.html

COMMITTEE MEMBERS

Derek Duckitt	(Chairman, Speaker Selector, website editor, "Southern Cross" editor, Cosmology SIG co-ordinator)	082 414 4024 derek.duckitt@gmail.com
Pierre de Villiers	(Vice-chairman, Speaker Selector, Projects and Outreach, Science and Technology Club)	082 854 2277
Elaine Sykes	(Treasurer)	083 286 2683
Peter Harvey	(Secretary, Membership, "Skynotes", "Southern Cross", Study Group SIG co-ordinator, Observing co-ordinator)	081 212 9481 petermh@hermanus.co.za
Mick Fynn	(Educational outreach)	082 443 0848
Pieter Kotzé	("Southern Cross" Astronomy News)	082 581 3233

Non-committee member with portfolio:

Deon Krige	(Astro-photography SIG coordinator)