



## NEWSLETTER JULY 2020

### Next meeting

Date: Wednesday 22 July 2020.

Time: 19h15.

Internet meeting. \*

- Annual General Meeting.
- Whats Up?: by Danie Barnardo.
- Main Talk: TBA by e-mail to members.
- Chairmen: Bosman Olivier and Johan Smit.

\* Johan Smit will email the link to join the meeting 15 minutes before the start to all members. Be at your computers at 19h00 sharp!

**NO OBSERVING EVENING THIS MONTH**

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## Astronomy-related articles on the Internet

**New exoplanet system is mirror image of Earth and Sun.** Astronomers have discovered an exoplanet less than twice the size of Earth orbiting at about the same distance from its star, which is similar to the Sun. This makes it the closest analogue to the Earth-Sun system known so far. [https://earthsky.org/space/exoplanet-kepler-160-mirror-image-earth-sun?utm\\_source=EarthSky+News&utm\\_campaign=9909886c78-EMAIL\\_CAMPAIGN\\_2018\\_02\\_02\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_c643945d79-9909886c78-394671529](https://earthsky.org/space/exoplanet-kepler-160-mirror-image-earth-sun?utm_source=EarthSky+News&utm_campaign=9909886c78-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-9909886c78-394671529)

**Pluto spacecraft sees parallax for Proxima.** For the first time, a spacecraft has sent back pictures of the sky from so far away that some stars appear to be in different positions than from Earth.

[https://earthsky.org/space/new-horizons-parallax-for-proxima-centauri?utm\\_source=EarthSky+News&utm\\_campaign=c24be8be25-EMAIL\\_CAMPAIGN\\_2018\\_02\\_02\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_c643945d79-c24be8be25-394671529](https://earthsky.org/space/new-horizons-parallax-for-proxima-centauri?utm_source=EarthSky+News&utm_campaign=c24be8be25-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-c24be8be25-394671529)

**New Exotica Catalogue will help guide search for ET.** The Breakthrough Listen project has released a new Exotica Catalogue with over 700 “one of everything” targets in the Universe. Technosignatures are the new big thing in the search for intelligent extraterrestrial life, and not only for “life as we know it”. [https://earthsky.org/space/the-breakthrough-listen-exotic-target-catalog-seti-extraterrestrial-intelligence?utm\\_source=EarthSky+News&utm\\_campaign=ae6dbb3e71-EMAIL\\_CAMPAIGN\\_2018\\_02\\_02\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_c643945d79-ae6dbb3e71-394671529](https://earthsky.org/space/the-breakthrough-listen-exotic-target-catalog-seti-extraterrestrial-intelligence?utm_source=EarthSky+News&utm_campaign=ae6dbb3e71-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-ae6dbb3e71-394671529)

[utm\\_source=EarthSky+News&utm\\_campaign=ae6dbb3e71-EMAIL\\_CAMPAIGN\\_2018\\_02\\_02\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_c643945d79-ae6dbb3e71-394671529](https://earthsky.org/space/the-breakthrough-listen-exotic-target-catalog-seti-extraterrestrial-intelligence?utm_source=EarthSky+News&utm_campaign=ae6dbb3e71-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-ae6dbb3e71-394671529)

**A monster quasar in the early Universe.** Astronomers just announced the most massive quasar yet known in the early Universe. Its monster central black hole has a mass equivalent to 1.5 billion solar masses. [https://earthsky.org/space/poniuena-monster-quasar-in-early-universe?utm\\_source=EarthSky+News&utm\\_campaign=8a816089d5-EMAIL\\_CAMPAIGN\\_2018\\_02\\_02\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_c643945d79-8a816089d5-394671529](https://earthsky.org/space/poniuena-monster-quasar-in-early-universe?utm_source=EarthSky+News&utm_campaign=8a816089d5-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-8a816089d5-394671529)

[utm\\_source=EarthSky+News&utm\\_campaign=8a816089d5-EMAIL\\_CAMPAIGN\\_2018\\_02\\_02\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_c643945d79-8a816089d5-394671529](https://earthsky.org/space/poniuena-monster-quasar-in-early-universe?utm_source=EarthSky+News&utm_campaign=8a816089d5-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-8a816089d5-394671529)

**Biggest asteroid to pass close (and undetected) this year.** Asteroid 2020 LD passed within the moon’s distance on June 5, but wasn’t discovered until June 7. It’s the 45th known and the largest asteroid to sweep within a lunar distance of Earth so far in 2020. This one zipped by at about 80% of the moon’s distance. The asteroid that caused Meteor Crater in Arizona (1.2 km wide) was estimated to be about 46 meters wide. 2020 LD is 122 meters wide. Assuming they have the same density, asreroid 2020 LD has  $(122/46)^3 = 19$  times the mass of the aforementioned asteroid.

[https://earthsky.org/space/asteroid-2020-ld-closer-than-moon-june-5-2020?utm\\_source=EarthSky+News&utm\\_campaign=4fe4a44196-EMAIL\\_CAMPAIGN\\_2018\\_02\\_02\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_c643945d79-4fe4a44196-394671529](https://earthsky.org/space/asteroid-2020-ld-closer-than-moon-june-5-2020?utm_source=EarthSky+News&utm_campaign=4fe4a44196-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-4fe4a44196-394671529)

**LIGO-Virgo find a mystery object in the ‘mass gap’.** A new object was found in the so-called “mass gap” between neutron stars and black holes.

[https://earthsky.org/space/gw190814-mystery-object-in-mass-gap?utm\\_source=EarthSky+News&utm\\_campaign=7652ba8504-EMAIL\\_CAMPAIGN\\_2018\\_02\\_02\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_c643945d79-7652ba8504-394671529](https://earthsky.org/space/gw190814-mystery-object-in-mass-gap?utm_source=EarthSky+News&utm_campaign=7652ba8504-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-7652ba8504-394671529)

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**M5.** This globular cluster is now visible in Serpens, near the celestial equator.

[https://earthsky.org/clusters-nebulae-galaxies/m5-best-globular-cluster-for-small-telescopes?utm\\_source=EarthSky+News&utm\\_campaign=20f7c4c22d-EMAIL\\_CAMPAIGN\\_2018\\_02\\_02\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_c643945d79-20f7c4c22d-394671529](https://earthsky.org/clusters-nebulae-galaxies/m5-best-globular-cluster-for-small-telescopes?utm_source=EarthSky+News&utm_campaign=20f7c4c22d-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-20f7c4c22d-394671529)

## Astronomy basics: What is the Big Bang?

At the moment of the Big Bang, all of the energy in the Universe – some of which would later become galaxies, stars, planets and human beings – was concentrated into a tiny point, smaller than the nucleus of an atom. And it's not just matter that was created in the Big Bang. Matter *and* space *and* time all began when that microscopic point suddenly expanded violently and exponentially.  $\Omega$

[https://earthsky.org/space/definition-what-is-the-big-bang?utm\\_source=EarthSky+News&utm\\_campaign=9909886c78-EMAIL\\_CAMPAIGN\\_2018\\_02\\_02\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_c643945d79-9909886c78-394671529](https://earthsky.org/space/definition-what-is-the-big-bang?utm_source=EarthSky+News&utm_campaign=9909886c78-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-9909886c78-394671529)

## Feature of the month:

### SA MeerKAT telescope solves long standing 'X-galaxies' mystery

The galaxy PKS 2014-55, located 800 million light years from Earth, is classified as 'X-shaped' because of its appearance in previous relatively blurry images. Its shape had been a mystery, but it was solved by the South African MeerKAT radio telescope. It is explained here:

<https://chochilino.com/2020/05/08/nature/south-africas-meerkat-solves-mystery-of-x-galaxies/>

The much bigger SKA (**S**quare **K**ilometre **A**rray), still under construction, will be the largest radio telescope in the world by far, and will incorporate the MeerKAT telescope in its array. We can be sure that the SKA will make discoveries that we cannot even imagine.  $\Omega$

## Astronomy-related images, video clips and documentaries on the Internet

**Noctilucent clouds.** See photographs and a video clip of these clouds in the atmosphere of the third planet from the Sun. They appear high up in the mesosphere, that part of its atmosphere that lies between 48 km and 80 km high.

[https://earthsky.org/earth/night-shining-clouds-noctilucent-clouds-how-they-form-how-to-see-them?utm\\_source=EarthSky+News&utm\\_campaign=9eb4a0ee20-EMAIL\\_CAMPAIGN\\_2018\\_02\\_02\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_c643945d79-9eb4a0ee20-394671529](https://earthsky.org/earth/night-shining-clouds-noctilucent-clouds-how-they-form-how-to-see-them?utm_source=EarthSky+News&utm_campaign=9eb4a0ee20-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-9eb4a0ee20-394671529)

### Winning submissions for Capture the Dark Photography Contest.

<https://darksy.app.box.com/s/yzvnppej02asjtwvjsxmyr4twxr3e8g>

**10 years of the Sun in 1 hour.** A new time lapse from NASA's SDO (Solar Dynamics Observatory) condenses an entire solar cycle into 1 hour.

[https://earthsky.org/space/10-years-sun-solar-cycle-video?utm\\_source=EarthSky+News&utm\\_campaign=f30ed24601-EMAIL\\_CAMPAIGN\\_2018\\_02\\_02\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_c643945d79-f30ed24601-394671529](https://earthsky.org/space/10-years-sun-solar-cycle-video?utm_source=EarthSky+News&utm_campaign=f30ed24601-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-f30ed24601-394671529)

### Observing: Walnuts, lilies and butterflies - by Magda Streicher

The most delicate objects in the sky are without doubt the planetary nebulae. Mysterious characters can be observed in the death clocks that appear in these beautiful objects. Unfortunately, though, just how distinctive and intricate planetary nebulae are can be appreciated only through the great telescopes like the Hubble telescope.

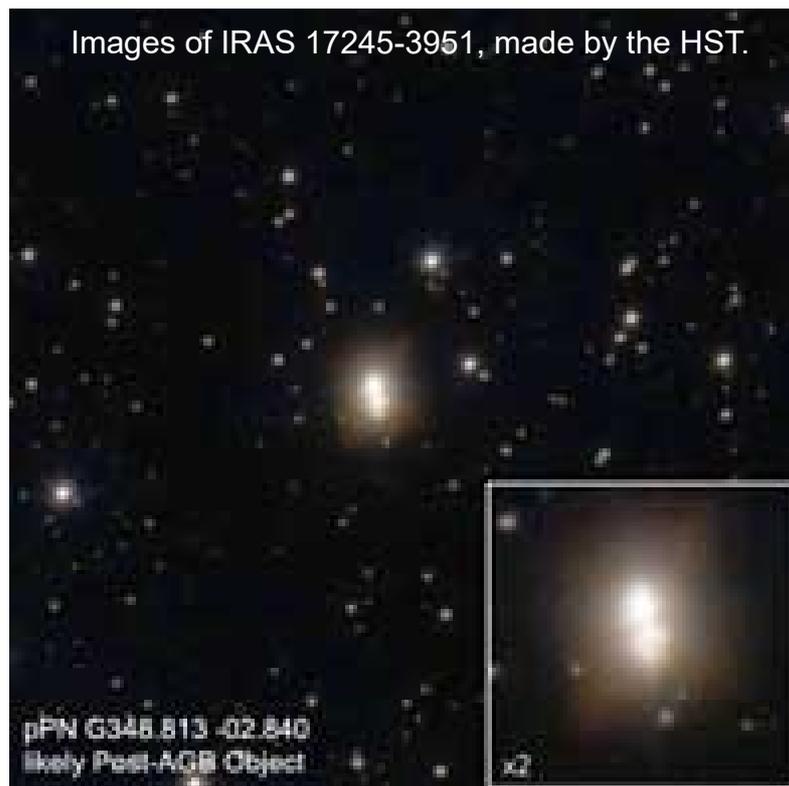
It is also true that some of the most creative names can be given to them which display their inner beauty and character. To nickname a nebula is one way of trying to describe its beauty as seen through the eyes and perceived by the mind of its beholder. What an amazing way to characterise them when their names fit them like a glove, even though, sadly, these objects are mostly very faint and cannot be seen through ordinary amateur telescopes.

One such an object is IRAS 17245-3951 situated in the constellation Scorpius and appropriately named the Walnut Nebula. The field of view makes it easy to get very close to it visually, with the planetary situated inside the curly tail of the constellation, about 3 degrees west of  $\kappa$  Scorpii. This object has now been confirmed as a new-type, bipolar proto-planetary nebula which clearly displays two lobes separated by a dust lane; thus, it is viewed nearly edge-on with two jet-like features.

The late Janet Mattei, the then President of the Variable Star Association based in Boston, loved the planetary nebulae so much that she started to take pictures of different flowers which she linked to various deep-sky objects. She died of leukaemia a few years later, but when I look at the lovely pictures of these exclusive objects, I cannot help thinking of her.

There is no way that one can ever get tired of admiring these nebulae that bring us a feast of flowery delights.  $\Omega$

Object	Type	RA	DEC	MAG	SIZE
IRAS 17245-3951	Planetary nebula	17 h 24.5 m	- 39° 51'	16	2'



## NOTICE BOARD

- ◆ **Astronomical data mining.** Scrutinise infrared images from NASA's WISE spacecraft to try and find circumstellar disks. With your help, astronomers will be able to identify both debris disks similar to our asteroid belt and Kuiper belt (which could be the signposts for exoplanetary systems) and protoplanetary disks, that will eventually form new planets. [https://www.zooniverse.org/projects/ssilverberg/disk-detective?utm\\_source=Newsletter&utm\\_medium=Email&utm\\_campaign=announce14july2020](https://www.zooniverse.org/projects/ssilverberg/disk-detective?utm_source=Newsletter&utm_medium=Email&utm_campaign=announce14july2020)
- ◆ **Beanies:** Beanies will be offered for sale @ R40.00 each at every monthly meeting, until they are sold out.
- ◆ **Old newsletters:** All old newsletters from January 2004 onward are on our website. They contain a record of our Centre's activities as well as astronomical information.
- ◆ **Data base:** Members are reminded that a data base of the books in our library is to be found on our website.

### Pretoria Centre committee

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