

The Newsletter of the Kern Astronomical Society No. 558 March 2022



<u>Round Table Pizza,</u> 4200 Gosford Road, Suite 101, Bakersfield, CA

Dinner & Social 6:30 pm Meeting/Program 7:30 pm

# Our regular monthly meeting will be held on March 4<sup>th</sup> at Round Table Pizza at 4200 Gosford Road.

Join us on Facebook: https://www.facebook.com/groups/syzygy/

Visit our Web Page at https://www.kernastro.org

Contact us at kernastronomicalsociety@gmail.com



# **Reach for the Stars**



## March Speaker: Omer Blaes - Professor of Physics from UC Santa Barbara

## Super Massive Black Holes – Probing the Engines that Drive the Evolution of Galaxies



After spending his formative years growing up in the UK, Omer Blaes earned his doctorate at the International School for Advanced Studies (SISSA) in Trieste, Italy. He then did postdoctoral work at the California Institute of Technology and the Canadian Institute of Theoretical Astrophysics in Toronto.

He finally joined the Physics Department faculty at the University of California, Santa Barbara in 1993 and has been there ever since. He has worked on a variety of problems in theoretical high energy astrophysics, particularly on the theory of socalled accretion disks: rapidly rotating flows around black holes and other compact objects that liberate gravitational energy into energetic outflows and radiation that we observe in a variety of spectacular phenomena across the universe.

### **Upcoming Meetings**

- April Sarah Milkovich Mars Geology
- May Shantanu Naidu Double Asteroid Redirection Test (DART) Mission
- June Katie Wightman Sequoia Dark Sky Festival
- July No meeting in July

### **Upcoming Star Parties and Possible Dark Sky Trip**

New moon star parties possible at Chuchupate on March 5<sup>th</sup> and April 2<sup>nd</sup>. Last quarter moon star party at Chuchupate possible on March 26th. We are also planning a Dark Sky Trip to Panamint Springs for April 29 & 30 if we can reserve the group site. Check the KAS Facebook page or your e-mails for updates.

# **Upcoming Events**

# Panorama Preserve Science Camps

Tentative dates for Panorama Preserve Science Camps are March 3 & March 31. At these camps, stations are setup throughout the preserve focusing on different science topics. Students travel in groups from station to station to learn about the topic. KAS sets up a solar viewing station to teach about the sun. We usually have several solar telescopes and regular telescopes with solar filters set up for viewing. More information will be provided at our upcoming meetings. Check the KAS Facebook page or your e-mails for updates.

# Wind Wolves Preserve



The Spring Nature Festival is Wind Wolves Preserve's biggest event of the year!

KAS will be there on both Saturday and Sunday to set up telescopes for solar viewing and a table with other information about Astronomy and our Club. All members are invited to come out and help. More information at our March monthly meeting.





2022 Dark Sky Festival September 23, 24, 25

Save the dates. This is our biggest event of the year. Camping available. Rooms at the lodge fill up fast. More information available at our Monthly Meetings.

The Dark Sky Festival is the largest night sky festival in Central California and takes place in various locations throughout Sequoia and Kings Canyon National Parks. The festival includes stargazing, guest speakers, and more.

#### Important Messages from the Board

**Membership:** We are now collecting annual membership fees for 2022. Annual membership is \$25. There is an application form at the end of the newsletter.

**Club Officers:** We are in immediate need of someone to fill the club secretary position. If interested, please e-mail Gregg Pytlak at <u>gpytlak@yahoo.com</u>. Here is a description of the duties:

### **Secretary Position Duties from the Club Bylaws:**

Section 4: The Secretary shall keep records, submit notices, and make reports to the members and Board of Directors, and perform such duties as are incidental to the office. The secretary must assist the treasurer in record keeping of the KAS membership list updated by administrating sign in sheets at all meetings.

### **KAS Constitution Update:**

Recently we sent out a draft revision of our club constitution with some necessary changes. We had hoped to vote on accepting the changes at the March meeting. However, after receiving feedback we made some further revisions and will be sending out a second revised version later in March to comply with our required 10 day advance notice before voting at the April meeting.

#### Primary Students in Tanzania Learn about the James Webb Space Telescope

### by: Walter Albrecht

Eliatosha Maleko runs a science club for students at the Ilburo Primary School in Arusha, Tanzania. Earlier this month Maleko shared a short video about the James Webb Space Telescope (JWST) with his students. The students were very excited to see the video about the telescope and wanted to know more. The students had many questions and Maleko shared the questions with the Astronomers Without Borders community. They also drew pictures of the JWST and the Hubble Space Telescope.

I responded to the questions from the students in the science club. A software developer and astronomy enthusiast from Bangalore, India responded as well.



Here is my response:

Dear Students in the Ilburo Primary School Science Club,

I was very excited to see such great questions about the James Webb Space Telescope (JWST). I also liked your drawings of the JWST and the Hubble Telescope. I enjoyed seeing the hexagons drawn so well. It is hard to draw hexagons that good. You have many talented artists in your club.

All the scientists and engineers were nervous when the JWST was launched because there are so many ways the mission could fail. Everything went as planned because they tested every part of the telescope again and again before launch. If something does go wrong there is no way for someone to fix it because it is 1,600,000 kilometers from Earth.

#### 1. What is advantages or benefits of James Webb Telescopes to human?

The JWST is much larger than the Hubble Space Telescope. The larger the telescope the more light you can see. Also the JWST is designed to see infrared light. Infrared light is invisible to us because we cannot see infrared light. We can feel infrared light though because it is hot. A fire gives off infrared light and we feel warm. The sun also gives off infrared light. That's why sunlight feels warm.

The universe is expanding and galaxies far away from us are moving very fast. When a faraway galaxy is moving away very fast its color turns red. The JWST can see the red light much easier than the Hubble Space Telescope. You can see some of the galaxies are red in this Hubble Space Telescope photo. Why are they red? It's because they are so far away. The light from these galaxies left billions of years ago. We are seeing what they looked like long ago. So telescopes are like time machines because we can see things from long ago

We live in the Milky Way Galaxy. All the stars you see at night are members of our galaxy. Some stars are hard to see because there is a lot of dust in our galaxy. The JWST can see through this dust. We will be able observe more of our galaxy.

Just as our sun has a family of planets circling it, other stars have planets as well. The JWST can detect planets circling other stars. Using the spectroscopic camera it will be able to detect water, carbon dioxide, ethane, and methane on these planets. These chemicals are the building blocks of life. It will be able to find planets that may support life.

The JWST will also explore our own solar system. We will be able to study comets, moons, Mars, and other planets. We may discover new minor planets, or icy worlds cycling our sun. We can study the atmosphere of Saturn and see how it changes over many years. We will be able observe storms in the atmospheres of Jupiter, Saturn, Uranus, and Neptune.

2. What is the real weight of James Webb Telescope?

The telescope weighs about 6,500 kilograms. That is about the weight of a large bus or 5 cars.

**3.** We had from the report that James Webb Telescope will replaced the works of Hubble Telescope in the space but where will that Hubble Telescope go?, will it not affect living things when it may be fall or blast on the air?

The Hubble telescope will continue to operate for another 10 or 20 years. As the telescope orbits Earth the very thin air at that altitude slows the telescope down until it crashes on the Earth. Before that happens NASA will attach a small rocket to the Hubble Telescope. They can either force the telescope down into the south Pacific Ocean far from people or it can place it in a higher orbit so that it will not come down for many decades.

4. We have learned that Hubble Telescope since it was sent to the space is almost about 32 years ago how long will James Webb Telescope takes in the space since it returned back on the earth?

The JWST will run for about 20 years. After that its rocket fuel will run out. The telescope is in a special place in our solar system called a Lagrange point. A Lagrange point is kind of like a gravity pocket. You have to fire a small rocket engine every once in a while to stay in this invisible gravity pocket or you could end up moving far from Earth.

Sincerely,

#### Walter Albrecht



Walter Albrecht started his astronomy journey as a boy when his father gave him a 3" reflecting telescope. He followed NASA's mission to the moon with great interest. When he became an elementary school teacher in Bakersfield, California he integrated NASA's various missions and astronomy into his science lessons. After joining the Kern Astronomical Society, Walter participated in numerous outreach events, attended astronomy conventions, built his own telescope, and served on the Kern Astronomical Society's executive board as the educational committee chair. Walter is also a member of the Astronomical League and Astronomers Without Borders. Now that he is retired he looks forward to sharing his love of space exploration and astronomy with the public.

Astronomers Without Borders is free to join and allows you to connect with amateur and professional astronomers around the world.



#### About the Celestial Objects

Listed on this page are several of the brighter, more interesting celestial objects visible in the evening sky this month (refer to the monthly sky map). The objects are grouped into three categories. Those that can be easily seen with the naked eye (that is, without optical aid), those easily seen with binoculars, and those requiring a telescope to be appreciated. Note, all of the objects (except single stars) will appear more impressive when viewed through a telescope or very large binoculars. They are grouped in this way to highlight objects that can be seen using the optical equipment that may be available to the star gazer.

#### Tips for Observing the Night Sky

When observing the night sky, and in particular deep-sky objects such as star clusters, nebulae, and galaxies, it's always best to observe from a dark location. Avoid direct light from street lights and other sources. If possible observe from a dark location away from the light pollution that surrounds many of today's large cities.

You will see more stars after your eyes adapt to the darkness—usually about 10 to 20 minutes after you go outside. Also, if you need to use a torch to view the sky map, cover the light bulb with red cellophane. This will preserve your dark vision.

Finally, even though the Moon is one of the most stunning objects to view through a telescope, its light is so bright that it brightens the sky and makes many of the fainter objects very difficult to see. So try to observe the evening sky on moonless nights around either New Moon or Last Quarter.

#### Astronomical Glossarv

Conjunction - An alignment of two celestial bodies such that they present the least angular separation as viewed from Earth.

Constellation – A defined area of the sky containing a star pattern.

Diffuse Nebula – A cloud of gas illuminated by nearby stars.

Double Star - Two stars that appear close to each other in the sky; either linked by gravity so that they orbit each other (binary star) or lying at different distances from Earth (optical double). Apparent separation of stars is given in seconds of arc (").

Ecliptic - The path of the Sun's center on the celestial sphere as seen from Earth.

Elongation – The angular separation of two celestial bodies. For Mercury and Venus the greatest elongation occurs when they are at their most angular distance from the Sun as viewed from Earth.

Galaxy – A mass of up to several billion stars held together by gravity. Globular Star Cluster – A ball-shaped group of several thousand old stars. Light Year (ly) - The distance a beam of light travels at 300,000 km/sec in one year. Magnitude – The brightness of a celestial object as it appears in the sky. Open Star Cluster – A group of tens or hundreds of relatively young stars. Opposition - When a celestial body is opposite the Sun in the sky. Planetary Nebula - The remnants of a shell of gas blown off by a star. Universal Time (UT) - A time system used by astronomers. Also known as Greenwich Mean Time. USA Eastern Standard Time (for example, New York) is 5 hours behind UT. Variable Star – A star that changes brightness over a period of time.

2 2	Easily Se	en	wi	th the Naked Eve					
NORTHERN HEMISPHERE March 2022	Easily Se Capella Arcturus Sirius Procyon à Cephei Castor Pollux Regulus Rigel Betelgeuse Algol Pleiades Hyades Aldebaran Polaris	Aur Boo CMa CMi Cep Gem Gem Leo Ori Ori Per Tau Tau Tau UMi	WI	th the Naked Eye The 6th brightest star. Appears yellowish in color. Spectroscopic binary. Dist=42 ly. Orange, giant K star. Name means "bear watcher". Dist=36.7 ly. The brightest star in the sky. Also known as the "Dog Star". Dist=8.6 ly. Greek name meaning "before the dog" - rises before Sirius (northern latitudes). Dist=11.4 ly. Cepheid prototype. Mag varies between 3.5 & 4.4 over 5.366 days. Mag 6 companion. Multiple star system with 6 components. 3 stars visible in telescope. Dist=52 ly. With Castor, the twin sons of Leda in classical mythology. Dist=34 ly. Brightest star in Leo. A blue-while star with at least 1 companion. Dist=77 ly. The brightest star in Orion. Blue supergiant star with mag 7 companion. Dist=770 ly. One of the largest red supergiant stars known. Diameter=300 times that of Sun. Dist=430 ly. Famous eclipsing binary star. Magnitude varies between 2.1 & 3.4 over 2.867 days. The Seven Sisters. Spectacular cluster. Many more stars visible in binoculars. Dist=399 ly. Large V-shaped star cluster. Binoculars reveal many more stars. Dist=152 ly. Brightest star in Taurus. It is not associated with the Hyades star cluster. Dist=66.7 ly. The North Pole Star. A telescope reveals an unrelabed mag 8 companion star. Dist=433 ly.					
2	Easily Se	en		th Binoculars					
BJECTS	M31 M38 M36 M37	And Aur Aur Aur	0000	The Andromeda Galaxy. Most distant object visible to naked eye. Dist=2.5 million ly. Stars appear arranged in "pi" or cross shape. Dist=4,300 ly. About half size of M38. Located in rich Milky Way star field. Dist=4,100 ly. Very fine star cluster. Discovered by Messier in 1764. Dist=4,400 ly.					
B	M44 M3 M41 Mel 111	Cnc CVn CMa Com	0 • 0 0	Praesepe or Beehive Cluster. Visible to the naked eye. Dist=590±20 ly. Easy to find in binoculars. Might be glimpsed with the naked eye. First recorded observation by Aristotle in 325 BC as "cloudy spot". Dist=2,300 ly. Coma Berenices. 80 mag 5–6 stars in 5 deg. Dist=288 ly. Age=400 million years.					
$\mathbf{O}$	M35 M48 γ Leporis 2232	Gem Hya Lep Mon	0 0 • 0	Fine open cluster located near foot of the twin Castor. Dist=2,800 ly. 12+ stars in 7x binoculars. Triangular asterism near centre. Dist=1,990 ly. Visible with binoculars. Gold & white stars. Mags 3.6 & 6.2. Dist=30 ly. Sep=96.3". A large scattered star cluster of 20 stars. Dist=1,300 ly.					
A	2244 M50 Cr 69 M42	Mon Mon Ori	0 0 0	Surrounded by the rather faint Rosette Nebula. Dist=5,540 ly. Visible with binoculars. Telescope reveals individual stars. Dist=3,000 ly. Lambda Orionis Cluster. Dist=1,630 ly.					
LESTIAL	Double Cluster M47 M46	Ori Per Pup Pup	0 0 0	The Great Orion Nebula. Spectacular bright nebula. Best in telescope. Dist=1,300 light years. Double Cluster in Perseus. NGC 869 & 884. Excellent in binoculars. Dist=7,300 ly. Bright star cluster. 15+ stars in 7x binoculars. Dist=1,500 ly. Dist=5,400 ly. Contains planetary NGC 2438 (Mag 11, d=65°) - not associated.					
بعا	Mizar & Alcor	UMa ic (	• )hi	Good eyesight or binoculars reveals 2 stars. Not a binary. Mizar has a mag 4 companion.					
	Telescopic Objects								
S	γ Andromedae s Boötis M67 M94 M51	And Boo Cnc CVn CVn	• • • • •	Attractive double star. Bright orange star with mag 5 blue companion. Sep-0.8". Red giant star (mag 2.5) with a blue-green mag 4.9 companion. Sep-2.8". Difficult to split. Contains 500+ stars mag 10 & fainter. One of the oldest clusters. Dist-2,350 ly. Compact nearly face-on spiral galaxy. Dist-15 million ly. Whirlpool Galaxy. First recognised to have spiral structure. Dist-25 million ly.					
å Bos	η Cassiopeiae M64 3242	Cas Com Hya	• •	Yellow star mag 3.4 & orange star mag 7.5. Dist-19 ly. Orbit-480 years. Sep-12". Black-Eye Galaxy. Discovered by J.E. Bode in 1775 - "a small, nebulous star". Ghost of Jupiter. Bright blue disk. Mag 11 central star. Dist-2,600 ly.					
¢ * ≉	γ Leonis β Monocerotis 2264 σ Orionis k Puppis	Leo Mon Mon Ori Pup	•	Superb pair of golden-yellow giant stars. Mags 2.2 & 3.5. Orbit=600 years. Sep=4.4". Triple star. Mags 4.6, 5.0 & 5.4. Requires telescope to view arc-shape. Sep=7.3". Christmas Tree Cluster. Associated with the Cone Nebula. Dist=2,450 ly. Superb multiple star. 2 mag 7 stars one side, mag 9 star on other. Struve 761 triple in field. Telescope easily shows two blue-white stars of almost equal brightness. Sep=9.9".					
S	M1 M81 M82 M87 y Virginis	Tau UMa UMa Vir Vir		Crab Nebula. Remnant from supernova which was visible in 1054. Dist=6,500 ly. Beautifut spiral galaxy visible with binoculars. Easy to see in a telescope. Close to M81 but much fainter and smaller. Supergiant galaxy with supermassive black hole at its core. Dist=53.5 million ly. Superb pair of mag 3.5 yellow-white stars. Orbit=169 years. At their closest in 2005.					
$\cup$			-	The Evening Sky Map (ISSN 1839-7735) Convright © 2000-2022 Kwn Thalassendis. All Rights Reserved.					

The Evening Sky Map (ISSN 1839-7735) Copyright © 2000-2022 Kym Thalassoudis. All Rights Reserved.

## Kern Astronomical Society InfoShare

Since 1956, the Kern Astronomical Society has promoted community awareness of current events in astronomy, and provides a forum for sharing of knowledge and experiences among amateur astronomers. Annual membership is \$25.00 which also provides membership in the Amateur Astronomical League, access to their newsletter (Reflector Magazine), and participation in observational programs.

#### **Star Parties and Outreach**

The Kern Astronomical Society typically has two Club Star Parties each month depending on the weather. Our Club Parties are held on Saturdays nearest the New Moon. We also host Public Star Parties at various locations around town during April - October. These parties are held on Saturdays nearest the first quarter Moon. In addition, we also host Lunar, Solar, and Planetary viewing for Public Schools. Requests may be directed to our Star Party Coordinator.

#### **Club Equipment**

The Kern Astronomical Society has telescopes and accessories (listed below) available for loan to Club Members in good standing. Members are encouraged to borrow the different types of telescopes in stock (especially if you are considering purchasing one). Trying out different sizes and types of telescopes can help you make an informed decision about purchases. If you have a Club telescope in your possession, you will be expected to participate in at least one public star party.

- 6" f/6, 8" f/6, 10" f/5.6, 13" f/4.5 Dobsonian telescopes, Parks Jovian 90, 3 ½" f/13 Maksukov-Cassegrain, 4" f/15 Unitron Refractor
- 8" Solar Filter
- Assorted eyepieces

	KAS Clu	o Officers and Support Staff
President: Vice President: Treasurer Secretary	Gregg Pytlak Diane Franco Pam Miller	<u>gpytlak@yahoo.com</u> dianef02@yahoo.com dgmpsm2@yahoo.com
Star Party / Event Coordinator Member at Large Member at Large Educational Committee Chair Educational Youth Ambassador	Darren Bly John Hester Darrell Miller	dcbly@bak.rr.com jh191623@gmail.com dgmpsm2@yahoo.com
Newsletter Editor Webmaster	Timothy Stoner Ivan Aburto	desert_enduro@hotmail.com ivanaburto88@gmail.com

# Kern Astronomical Society

Membership New/Renewal 2022

Date:
Family Members:
Address:
City, State, Zip:
Phone:
Email:*
L'III
My check#for (or cash) the amount of \$ is enclosed.
Yearly Membership \$25
Make checks payable to: KAS (or) Kern Astronomical Society
You can also mail this form and check to:
KAS
5501 Stockdale Hwy #10241
Bakersfield, CA 93389
** Please provide the email address where you wish to receive the KAS newsletter (if different than above
"SYZYGY":