

DART will help NASA Combat Doomsday Asteroids



Asteroid 4660 Nereus doesn't pose a risk to Earth. But DART slamming into a different asteroid will help us prepare for such threats in the future. NASA classifies asteroids or comets that come within 1.3 AU of our planet a Near Earth Object. A Potentially Hazardous Object is one that gets even closer at 0.5 AU. As for 4660 Nereus, this space rock is on a path that will bring it within 2.4 million miles (3.9 million km) of Earth, or about 10 times farther out than the Moon. Even at its next closest approach — expected in 2060 — the asteroid will only get within about three times the Earth-Moon distance. NASA's DART craft is on a direct course to Dimorphos. The mission will determine whether striking an asteroid head-on is a successful way to redirect their course.

Photo Courtesy: NASA/Johns Hopkins, APL/Steve Gribben

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The EAS newsletter, Observer, is published monthly. Anyone wishing to contribute articles or photos may mail them to the club's PO Box: EAS, PO Box 3474, Evansville, IN 47733, or e-mail them to the editor at:

dasiceman@yahoo.com

The **Evansville Astronomical Society (EAS)** is a non-profit organization fully incorporated in the state of Indiana. It has, as its primary goal, the advancement of amateur astronomy. Founded in 1952, the society seeks to:

- 1... maintain adequate facilities for its members and the public in order to extensively study the skies and
- 2... promote an educational program for those who wish to learn more about the science of Astronomy.

Meetings are held the third Friday of each month, except June, when the annual EAS picnic is held. The society also sponsors monthly Open House events during the warmer seasons that afford the public an opportunity to tour the observatory.

EAS 2022 Officers and Contacts

President – Tony Bryan
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Vice President – Scott Conner

Secretary – Dave Kube
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Treasurer – Amy Barrett

Counselors
Mitch Luman (2020)
Michael Borman (2021)
Ken Harris (2022)

Webmaster – Michael Borman

Program Director
Chuck Allen

Newsletter editor – Dave Kube
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For more information about the EAS or directions to the Observatory, please visit the club's web page:

www.evansvilleastro.org



Local Events and Information

EAS Update

Please Note: We have a Zoom Meeting scheduled for 7:30 PM on Friday, January 21st, 2022. Our presenter will be Bob King from New Mexico.

EAS Update

EAS Update:

Please visit our website www.evansvilleastro.org and our Facebook Group page to keep yourself up to date for any changes.

FOR SALE:

Telescopes and accessories for sale...

As mentioned in last month's issue, Mike Borman still has some excellent telescope equipment and imaging accessories for sale. Some of the gear has already been sold. If interested, go to Mike's web page. Here is the link: <http://www.mborman.org/forsale.htm>

Technosignature from Proxima Centauri — and why Astronomers Rejected it.



Located in Australia, the CSIRO Parkes Radio Telescope picked up the strange signal stemming from Proxima Centauri.

Credit: CSIRO/A. Cherney

On 29 April 2019, the Parkes Radio Telescope in New South Wales, Australia, picked up an unusual signal while searching for signs of intelligent life elsewhere in the universe. The telescope was observing Proxima Centauri, the nearest star to the sun and host to a number of exoplanets that are potentially habitable.

The search was part of a project called Breakthrough Listen, which is hunting for technosignatures from other civilizations. These searches gather vast amounts of data. So the first task is to filter the interesting signals from the background.

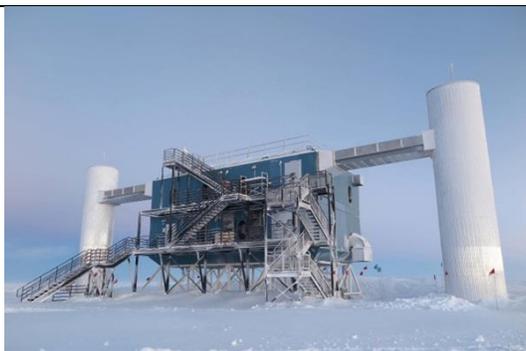
In theory, a technosignature must have two important properties. The first is that it must be confined to a narrowband of frequencies with high information content. No known natural process can produce signals like this.

The second is that the frequency of the signal must drift in a way that is consistent with the motion of an exoplanet relative to the Earth. The drift is the result of the relative accelerations which causes a slight Doppler shift.

To determine the possible origin, the team looked at common properties, whether they could be part of a harmonic sequence from a parent signal or had a more complex relationship.

That's when the origin became clear. It appeared to be multiples of frequencies used in common clock oscillators. That meant the signals were almost certainly generated by the interaction of ordinary digital electronic devices, probably from the radio frequency environment of the telescope facility itself.

Alien Antimatter Crashes into Earth.



It came from outer space. And it was tiny.

Credit Erick Beiser/ICECUBE/NSF.

In March 2021, after years of analyzing and confirming data, astrophysicists reported that the IceCube Neutrino Observatory, a detector buried at the South Pole, had picked up an unusual signal in 2016. It suggested that a particle called an antineutrino had crossed space and time — originating far beyond our galaxy — before smashing into Antarctica and releasing a particle shower in the ice..

According to the Standard Model of particle physics, every known type of particle has an antimatter counterpart. More than 60 years ago, future Nobel laureate Sheldon Glashow predicted that if an antineutrino — the antimatter answer to the nearly massless neutrino — collided with an electron, it could produce a cascade of other particles. The “Glashow resonance” phenomenon is hard to detect, in large part because the antineutrino needs about 1,000 times more energy than what’s produced in the most powerful colliders on Earth.

But IceCube’s detection is evidence that cosmic accelerators in space could readily propel high-energy particles.

February 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

Generated by FreeHTMLCalendar.com Copyright © 2011 John Dalbey.

Up and Coming Events 2021

~~EAS Meetings and Events are currently on hold or cancelled due to the current COVID-19 situation.~~

Please Note we have a Zoom Meeting scheduled for 7:30 PM on Friday, January 21st, 2022.

Please visit our Web Page <http://www.evansvilleastro.org> for updates.

Please visit our Facebook Group Page for updates.

Moon Phases

New Moon	First Quarter	Full Moon	Third Quarter
February 1 st , 2022	February 8 th , 2022	February 16 th , 2022	February 23 rd , 2022

[Moon Phases courtesy of Time and Date.com](http://www.timeanddate.com)

EAS Meeting Notes for December – 2021

On December 17th, 2021 the EAS held a members only In-Person Meeting at the observatory. The meeting was called to order by President Tony Bryan @ 7:37 pm. There were 12 members present including board members Tony Bryan, Scott Conner, Dave Kube and Amy Barrett. We had one new member present Michael Sturgen and no visitors present.

Tony introduced the newly elected board members, Himself as President, Scott Conner Vice President, Dave Kube Secretary and Amy Barrett Treasurer. Ken Harris was elected to a new 3 year term as Counselor.

Dave Kube read the minutes from our previous zoom meeting. Amy Barrett reported that our finances are holding, but lack of donations from holding no events is starting to take a dip out of our pocket book. She also stated that we had an \$80 Amazon Smile donation. Keep using Amazon Smile for your Amazon purchases. Scott Conner read our upcoming events which include a zoom meeting for January 21st, 2022 and a meeting TBD for February 18th, 2022.

Under Old Business Tony Bryan reported the results of the previous month's election of officers and counselors.

Under New Business reported that the board members will soon have a planning meeting to discuss the 2022 calendar.

Tony announced our January Meeting will be a zoom meeting with our presenter being Bob King.

The meeting was adjourned @ 7:48 pm.

Our presentation for the evening was our annual constellation quiz presented by Chuck Allen. We had 3 categories of winners listed below:

Novice Category

2nd Place – AJ Satterly

1st Place – Donna Bryan

Open Category

3rd Place – Burk Fischer

2nd Place Amy Bbarrett

1st Place – Michael Sturgen

Expert Category

3rd Place – Ken Harris

2nd Place – Mike Borman

1st Place – Mitch Luman – Next Years Presenter

Respectfully Submitted – Dave Kube – Secretary