

Capital Area Astronomy Association



Abrams Planetarium

Next meeting,

August meeting:

Astronomy on Tap- Live event!!

☀ President's column

☀ Observe the Summer Milky Way

☀ Fox Park Star party

☀ A Remarkably Constant History of Meteorite Strikes

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Presidents column

Astronomy on Tap – In person event Aug. 11!

Astronomy on Tap is having their first in person event on Aug 11! This sounds like a great event to get back out and see some live in-person talks. According to the info they are going to try and have some telescopes set up for moon observing which sounds fun! I have copied the event description below:

“Join us for a special event this August and our first in-person event since March of 2020!

We'll have four 10-minute lightning talks on a variety of topics over the course of the evening while relaxing on the amazing outdoor patio at the Michigan Wildlife Conservancy.

Feel free to wander the grounds before, during, and after the event, but make sure you grab a drink at the Wildlife Pub to enjoy while you do!

We'll have some trivia questions and we'll finally be able to raffle off some physical astro-themed prizes instead of virtual gift cards!

We'll also try to have a telescope or two set up on the grounds to do a bit of moon crater viewing and simple night sky observing. The Perseids meteor shower will also be at its peak around this time, so look to the sky for some shooting stars!”

Wednesday, Aug. 11 at 7:30 pm

**Michigan Wildlife Conservancy
6380 Drumheller Rd
Bath, MI 48808**

Observe the Milky Way and Great Rift

David Prosper

Summer skies bring glorious views of our own Milky Way galaxy to observers blessed with dark skies. For many city dwellers, their first sight of the Milky Way comes during trips to rural areas - so if you are traveling away from city lights, do yourself a favor and look up!

To observe the Milky Way, you need clear, dark skies, and enough time to adapt your eyes to the dark. Photos of the Milky Way are breathtaking, but they usually show far more detail and color than the human eye can see – that’s the beauty and quietly deceptive nature of long exposure photography. For Northern Hemisphere observers, the most prominent portion of the Milky Way rises in the southeast as marked by the constellations Scorpius and Sagittarius. Take note that, even in dark skies, the Milky Way isn’t easily visible until it rises a bit above the horizon and the thick, turbulent air which obscures the view. The Milky Way is huge, but is also rather faint, and our eyes need time to truly adjust to the dark and see it in any detail. Try not to check your phone while you wait, as its light will reset your night vision. It’s best to attempt to view the Milky Way when the Moon is at a new or crescent phase; you don’t want the Moon’s brilliant light washing out any potential views, especially since a full Moon is up all night.

Keeping your eyes dark adapted is especially important if you want to not only see the haze of the Milky Way, but also the dark lane cutting into that haze, stretching from the Summer Triangle to Sagittarius. This dark detail is known as the Great Rift, and is seen more readily in very dark skies, especially dark, dry skies found in high desert regions. What exactly is the Great Rift? You are looking at massive clouds of galactic dust lying between Earth and the interior of the Milky Way. Other “dark nebulae” of cosmic clouds pepper the Milky Way, including the famed Coalsack, found in the Southern Hemisphere constellation of Crux. Many cultures celebrate these dark clouds in their traditional stories along with the constellations and Milky Way.

Where exactly is our solar system within the Milky Way? Is there a way to get a sense of scale? The “Our Place in Our Galaxy” activity can help you do just that, with only birdseed, a coin, and your imagination: bit.ly/galaxyplace.

You can also discover the amazing science NASA is doing to understand our galaxy – and our place in it - at nasa.gov.

If the Milky Way was shrunk down to the size of North America, our entire Solar System would be about the size of a quarter. At that scale, the North Star, Polaris - which is about 433 light years distant from us - would be 11 miles away! Find more ways to visualize these immense sizes with the Our Place in Our Galaxy activity: bit.ly/galaxyplace

A Remarkably Constant History of Meteorite Strikes

By [Katherine Kornei](#)

{Researchers dissolve chunks of the ancient seafloor to trace Earth's impact history and find that colossal clashes between asteroids don't often trigger an uptick in meteorite strikes.}

Thousands of tons of extraterrestrial material pummel Earth's surface each year. The vast majority of it is too small to see with the naked eye, but even bits of cosmic dust have secrets to reveal.

By poring over more than 2,800 grains from micrometeorites, researchers have found that the amount of extraterrestrial material falling to Earth has remained remarkably stable over millions of years. That's a surprise, the team suggested, because it's long been believed that random collisions of asteroids in the asteroid belt periodically send showers of meteoroids toward Earth.

Birger Schmitz, a geologist at Lund University in Sweden, remembers the first time he looked at sediments to trace something that had come from space. It was the 1980s, and he was studying the Chicxulub impact crater. "It was the first insight that we could get astronomical information by looking down instead of looking up," said Schmitz.

Inspired by that experience, Schmitz and his Lund University colleague Fredrik Terfelt, a research engineer, have spent the past 8 years collecting over 8,000 kilograms of sedimentary limestone. They're not interested in the rock itself, which was once part of the ancient seafloor, but rather in what it contains: micrometeorites that fell to Earth over the past 500 million years.

Schmitz and Terfelt used a series of strong chemicals in a specially designed laboratory to isolate the extraterrestrial material. They immersed their samples of limestone—representing 15 different time windows spanning from the Late Cambrian to the early Paleogene—in successive baths of hydrochloric acid, hydrofluoric acid, sulfuric acid, and nitric acid to dissolve the rock. Some of the reactions that ensued were impressive, said Terfelt, who recalled black smoke filling their laboratory's fume hood. "The reaction between pyrite and nitric acid is quite spectacular."

The chemical barrage left behind grains of chromite, an extremely hardy mineral that composes about 0.25% of some meteorites by weight. These grains are like a corpse's gold tooth, said Schmitz. "They survive."

Schmitz and Terfelt found that over 99% of the chromite grains they recovered came from a stony meteorite known as an ordinary chondrite. That's perplexing, the researchers suggested, because asteroids of this type are rare in the asteroid belt, the source of most meteorites. "Ordinary chondritic asteroids don't even appear to be common in the asteroid belt," Schmitz told Eos.

An implication of this finding is that most of Earth's roughly 200 known impact structures were likely formed from ordinary chondrites striking the planet. "The general view has been that comets and all types of asteroids were responsible," said Schmitz.

When Schmitz and Terfelt sorted the 2,828 chromite grains they recovered by age, the mystery deepened. The distribution they found was remarkably flat except for one peak roughly 460 million years ago. We were surprised, said Schmitz. "Everyone was telling us [we would] find several peaks."

Sporadic collisions between asteroids in the asteroid belt produce a plethora of debris, and it's logical to assume that some of that cosmic shrapnel will reach Earth in the form of meteorites. But of the 15 of these titanic tussles involving chromite-bearing asteroids that occurred over the past 500 million years, that was the case only once, Schmitz and Terfelt showed. "Only one appears to have led to an increase in the flux of meteorites to Earth."

Perhaps asteroid collisions need to occur in a specific place for their refuse to actually make it to our planet, the researchers proposed in the Proceedings of the National Academy of Sciences of the United States of America. So-called "Kirkwood gaps"—areas within the asteroid belt where the orbital periods of an asteroid and the planet Jupiter constitute a ratio of integers (e.g., 3:1 or 5:2)—are conspicuously empty. Thanks to gravitational interactions that asteroids experience in these regions of space, they tend to get flung out of those orbits, said Philipp Heck, a meteorist at the Field Museum of Natural History in Chicago not involved in the research. "Those objects tend to become Earth-crossing relatively quickly."

We're gaining a better understanding of the solar system by studying the relics of asteroids, its oldest constituents, said Heck. But this analysis should be extended to other types of meteorites that don't contain chromite grains, he said. "This method only looks at certain types of meteorites. It's far from a complete picture."

—Katherine Kornei (@KatherineKornei), Science Writer

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**Abrams Planetarium**

755 Science Rd.
East Lansing, Michigan
48824

REMINDER!! Fox Park Star Party!!

The 11th Annual Fox Park Star Party is being held August 5th -8th at Fox Memorial Park near Potterville, Michigan, SW of Lansing. All but \$5 of every registration fee goes directly into the Observatory's fund that is used for upgrading, maintaining, and operating this fantastic public observatory. Registration fees are as follows:

- 1 night \$15 Individual / \$20 Family
- 2 nights \$25 Individual / \$30 Family
- 3 nights \$30 Individual / \$35 Family

Registration fees include all camping and entrance fees to the park for the entire weekend. Power for any and all astronomical equipment is available at no charge. There is a nice beach, walking trails, decent restrooms (sorry, only an outside beach shower), playgrounds and plenty of room for tents and RV's. If you don't like to camp, there are hotels available within 5-15 miles in Lansing and Charlotte.

Registration will begin at 7 p.m. on Thursday, August 5th and feel free to show up anytime on Friday or Saturday as well. Our Star Party is pretty informal so all you need to do is check in with Jason when you arrive or after you set up. The chain restricting access to the observatory road will be put up at sundown. If you are not staying the night, you will need to park in the lot at the bottom of the hill.

If you have Astronomy items for sale, images, test reports or observations you would like to post to the newsletter, please send them to me at kmelvin33@gmail.com

Club dues. Please send to Chuck \$12.00
Treasurer E-mail: chuck_taricska@yahoo
Thank you all for supporting the group.