

The Ursa Minor Report



Newsletter of the Kutztown University
Planetarium & Observatory

Spring 2016

Volume 2, Issue 1

Meteorites Land at KU!

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Have you ever wanted to touch something from outer space? Now you can! The Kutztown University Astronomy program is happy to announce the impact (we mean arrival) of our very own meteorite collection. Thanks to a generous alumni donation, you can learn about the formation of planets and the Solar System while holding some of the evidence in your hands. This January, our first three specimens arrived. The first was a gibeon meteorite with the distinctive crystal Widamstatten Pattern that preserves the cooling metal core of an asteroid. The Seymchan meteorite was found in Northeast Russia and contains small, green olivine crystals embedded in metal surroundings. The Seymchan meteorite is the frozen evidence of differentiation. Finally, we have an entire stony meteorite found in Northwest Africa. The crust of this meteorite melted as the friction of the atmosphere eroded it. Meteorites preserve the early processes in our Solar System and are one of the ways that we know how our Sun and planets formed and how long it took. We can use radioactive decay to figure out how old these meteorites are, and that tells us about the age of our Solar System. Scientists who study meteorites are called meteoriticist and have a strong background in chemistry and geology.



Our new meteorites will make their KU debut in two special planetarium events on February 3rd and April 7th with Dr. Erin Kraal describing the story of each meteorite, followed by a planetarium show. Stay tuned, starting in the fall they will be available to go on tour visiting schools, groups, and classes.



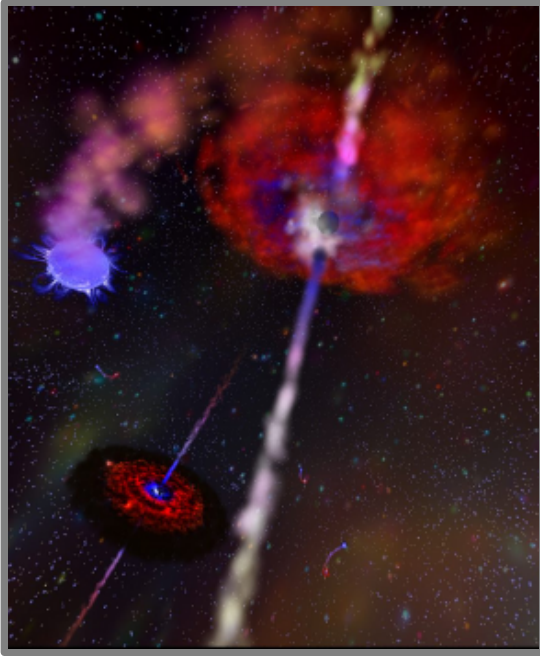
Spring 2016 Schedule of Public Planetarium Shows & Events

DATE	TIME	EVENT	COST
Wednesday, February 3	7:00 pm	<i>NEW "Pieces of Planets"</i> meteorite talk w/ Dr. Erin Kraal (includes "Birth of the Solar System" planetarium show)	FREE †
Wednesday, February 17	7:00 pm	<i>NEW "Black Holes"</i> planetarium show w/ Dr. Phill Reed	FREE †
Wednesday, February 17	8:00 pm	" Laser Beatles " musical laser light show	\$5.00 ††
Thursday, March 3	7:00 pm	" Light Years From Andromeda " planetarium show w/ Dr. Phill Reed	FREE †
Thursday, March 3	8:00 pm	" Laser Zeppelin " musical laser light show	\$5.00 ††
Friday, March 18	6:30 pm	Sesquicentennial Show: "150 years of the sky over Kutztown University"* sponsored by the Kutztown Foundation and Alumni Relations office (* To request free tickets for this show, please call 610-683-4110)	FREE*
Saturday, March 19	6:00 pm	A Celestial Spring Eve Computer Music & Visualization Seminar	FREE †
Thursday, March 24	7:00 pm	" Secret Lives of Stars " planetarium show w/ Dr. Phill Reed	FREE †
Thursday, March 24	8:00 pm	" Laser Beatles " musical laser light show	\$5.00 ††
Wednesday, April 6	7:00 pm	<i>NEW "Black Holes"</i> planetarium show w/ Dr. Phill Reed	FREE †
Wednesday, April 6	8:00 pm	" Laser Zeppelin " musical laser light show	\$5.00 ††
Thursday, April 7	7:00 pm	<i>NEW "Pieces of Planets"</i> meteorite talk w/ Dr. Erin Kraal (includes "Birth of the Solar System" planetarium show)	FREE †
Thursday, April 21	7:00 pm	" Ice Worlds " planetarium show with Dr. Phill Reed	FREE †
Thursday, April 21	8:00 pm	" Laser Beatles " musical laser light show	\$5.00 ††

† These educational planetarium shows are free and open to the public. No tickets are required. Seating is first-come, first-served.

†† Laser light show tickets are available for cash at the planetarium. Tickets for all shows will be available at all KU planetarium & observatory events. Available tickets will also be sold at the door on the day of the show. Proceeds support the KU Planetarium Community Outreach Program.

More To Be Announced ...
www.kutztown.edu/planetarium



"Black Holes" Planetarium Show

They lurk in the universe like cosmic dragons, unseen voids with the energy of a million suns. They can devour entire stars, and once in their grasp, nothing, not even light, can escape. Few mysteries in the universe have the power and awe of the black hole. Only now are we on the verge of understanding their true nature.

Narrated by noted actor John de Lancie ("Q" in the Star Trek TV series), this new immersive theater program incorporates several of the latest theories regarding black holes. Where do they come from? Will the Earth ever be sucked into one? Do "Worm Holes" really exist?

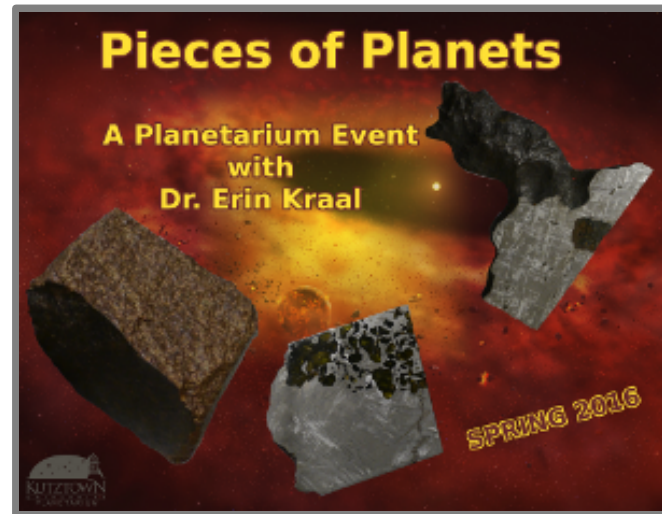
Designed for general audiences, this full-length animated production features 3-D simulations of black holes and the strange physical effects they can create. With a host of advisors from around the country, this proves to be the most up-to-date and visually stunning shows about black holes ever produced!

February 17 and April 6 at 7:00pm – Admission is FREE.

"Pieces of Planets" Meteorite Talk

Introducing our three new meteorites, this show will explore the formation of the meteorites in our new collection. What do stories do these meteorites tell us? What can we learn about asteroids and planets by examining their structure and materials? Meteorites are pieces of asteroids, so we will discuss how asteroids form and look at new NASA images of asteroids. Then we will talk about the journey from asteroid to meteorite. What happens during a 'shooting star' and how do we find them after they crash into Earth? Ultimately we will trace journey crashing onto Earth and eventually into your hands at the KU Planetarium. Following the 25 minute talk, there will be a showing of planetarium show "Birth of the Solar System". This show will be repeated twice.

February 3 & April 7 at 7:00pm – Admission is FREE.



Sesquicentennial Planetarium Show: "150 years of the sky over Kutztown University"



How has the study of astronomy changed over the 150 years since the founding of Kutztown University? What has stayed the same? And what has happened in the sky over Kutztown during the University's first century and a half?

These questions will be answered in this one-time-only live planetarium presentation. Rare photographs will be shared and interesting stories (legends?) will be told.

This show is sponsored by the Kutztown Foundation & Alumni Relations office and requires tickets. **To request FREE tickets, please call 610-683-4110.**

"Light Years From Andromeda" Planetarium Show

The Andromeda galaxy is the closest large galaxy to our own, but it still takes the light from Andromeda quite a while to reach us. Where were you when the Andromeda galaxy actually looked the way you see it in the sky tonight? Had you been born yet? Were there even any humans on Earth yet?

Light Years From Andromeda, narrated by Michael Dorn (Worf from "Star Trek: The Next Generation"), takes you on the journey experienced by the very light you see every time you look up at the Andromeda galaxy.

March 3 at 7:00pm – Admission is FREE.



"Secret Lives of Stars" Planetarium Show

How are stars born? How do they die? What will happen to our Sun at the end of its life? Secret Lives of Stars, narrated by Patrick Stewart, answers these questions, and more!

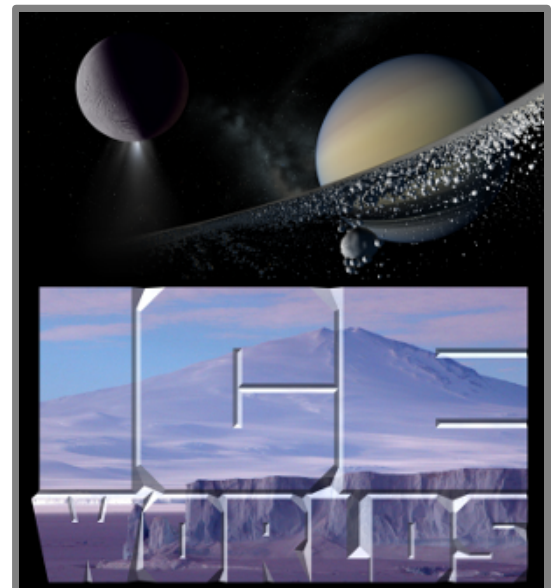
Not all stars are created equal - some are extremely massive while others are relatively tiny and apparently insignificant. The specific characteristics of a star will determine what type of life it will lead, how long it might live and even the type of death it will die. During this planetarium show, you will witness the amazing variety of stars and peer into their secret lives.

March 24 at 7:00 pm – Admission is FREE.

"Ice Worlds" Planetarium Show

Ice is extremely important to life on Earth, where it exists in a delicate balance with liquid water. Outside of our own planet, ice comprises many other worlds such as Saturn's moon Enceladus and Jupiter's Europa. Narrated by Emily Watson, Ice Worlds takes us on an exploration of these icy regions of the Solar System.

April 21 at 7:00pm – Admission is FREE.



LASER LIGHT SHOWS

LASER Light Shows are here to stay! After a very successful run of Pink Floyd Laser Light Shows in October 2015, the KU Planetarium is offering *Laser Beatles* and *Laser Zeppelin* shows this Spring Semester! The dates are:

- **Laser Beatles:**
 - Wednesday 2/17/2016 at 8:00 pm
 - Thursday 3/24/2016 at 8:00 pm
 - Thursday 4/21/2016 at 8:00 pm
- **Laser Zeppelin:**
 - Thursday 3/3/2016 at 8:00 pm
 - Wednesday 4/6/2016 at 8:00 pm



How to get LASER Light Show tickets:

Tickets will now be sold exclusively at the KU Planetarium – so they can be purchased at any KU Planetarium or Observatory event throughout the semester! If still available, tickets will be sold at the door on the day of each show.

The cost per ticket is \$5.00, and proceeds benefit the KU Astronomy Outreach Program. The planetarium currently accepts cash only for laser light show tickets.

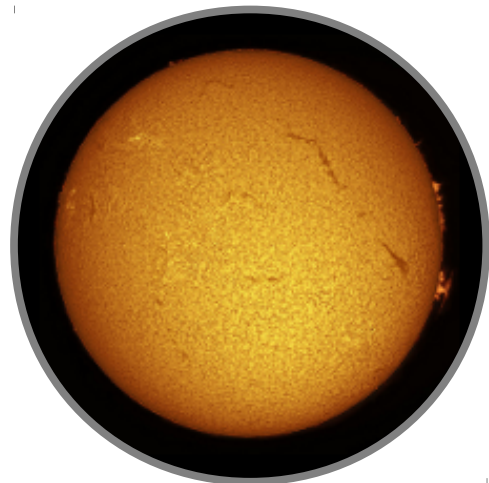


Open House at the Observatory

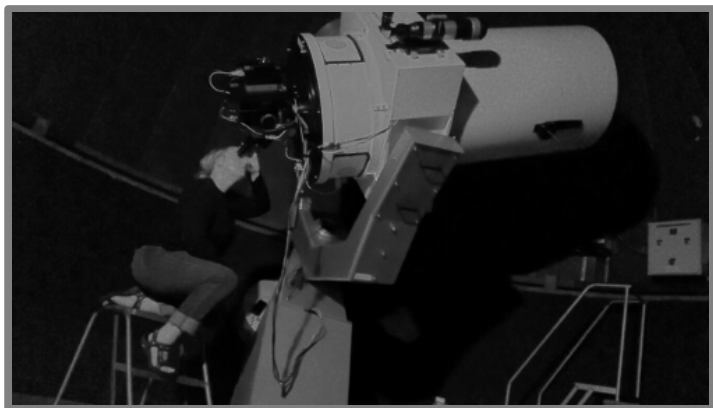
Lunchtime Solar Observing – Every (Sunny) Friday at Noon!

During the Spring 2016 semester, the KU Observatory will be open for Solar Observing every Friday at noon until 1:30pm. The Observatory Director, Dr. Phill Reed, or a capable astronomy student, will be on hand to show visitors how to use the specialized Solar telescope. The Solar telescope is specifically designed to look directly at the Sun and is perfectly safe ... and awe-inspiring!

If the Sun is out and you have some spare time during lunch on a Friday, come out to the observatory (3rd floor of Grim Science Building) and take a live up-close look at the Sun. Observe the Sun's magnetic activity by finding Sunspots, flares, and eruptions!



Public Nighttime Observing:



ABOVE: A visitor looks through the eyepiece of the 24" research telescope – the KU Observatory's main instrument.

The KU Observatory will continue to be open to the community during public observing events. Since these events require a clear sky and are heavily dependent on the weather, they are announced as the opportunities arise. Oftentimes, a public observing event will be announced on the morning of the same day. A sure way to get all of the announcements is to follow the KU Planetarium & Observatory on Facebook:

<https://www.facebook.com/KUPlanetarium>

Guests at the KU Observatory have been treated to live views of planets, star clusters, galaxies, and more!



ABOVE: These are typical views through the 24" telescope's eyepiece of some common targets for visual observing. From left to right: a very small portion of the moon's surface, the planet Saturn, the "Orion Nebula" (M42) – a star forming region, the planet Jupiter, and the "Hercules" globular star cluster (M13) – a collection of 300,000 stars in the Galactic halo.