

[Please note: The words in brackets after the presentation summary are keywords for the topics in the presentation. In general, "Astronomy" is a keyword for all of these presentations, but is not included in the list of keywords.]

February 8, 2019 'Oumuamua: Natural Object or Alien Probe?

The object nicknamed 'Oumuamua is the first discovered interstellar visitor to our solar system. This presentation discusses the scientific and media controversy surrounding 'Oumuamua since its discovery.

[solar system, asteroids, comets, space probes, news media, controversies]

September 14, 2018 Are We Prepared For the Next Carrington Event?

In 1859, a sunspot group spewed a coronal mass ejection from the Sun which hit the Earth, causing brilliant auroral displays and strong and damaging electrical currents in the only long-distance wires of the time: telegraph lines. This came to be called the Carrington Event, after the astronomer who first described that sunspot group. What would happen to our modern, interconnected, fully-wired society if a coronal mass ejection as strong as the Carrington Event were to strike the Earth again?

[history, Sun, sunspot, aurora, electric power, natural disasters, public policy]

November 10, 2017 Curious Exoplanet Scientists Want To Know: Is There Life On Earth?

Scientists are continually discovering new exoplanets, planets in other solar systems. Some of these exoplanets might be able to support life. Could imagined scientists on these exoplanets determine if there is life on Earth?

[exoplanets, alien life, observation, SETI (Search for Extraterrestrial Intelligence)]

July 8, 2016 Einstein Destroys Vulcan!

In the 19th century, a French mathematician proposed that an undiscovered planet existed that orbited the Sun closer than Mercury in order to explain a problem with Mercury's orbit. Since it would be so close to the Sun, he called the planet "Vulcan". This presentation shows how Einstein's Theory of Relativity destroyed the need for planet Vulcan.

[history, mathematics, planetary orbits, Einstein, Relativity, Mercury, slide rules, computational astronomy, planet nine, controversies]

March 14, 2014 The Machines of ALMA

The radio telescope observatory in the Atacama high desert of Chile, the Atacama Large Millimeter/Submillimeter Array (ALMA), consists of movable radio telescopes and large vehicles to move them. Learn about these fascinating machines and how they're used.

[radio telescope array, Chile, Atacama high desert, vehicles, challenges]

September 13, 2013 Optical Illusions and the Moon Illusion

The Moon Illusion makes the Moon look larger at the horizon than when it is higher in the sky. Why does this happen and why are eyes so easily fooled?

[optical illusions, Moon illusion, eyesight, optics, perception]

September 9, 2011 The Antikythera Mechanism

In 1901, off the coast of the small Greek island Antikythera, sponge divers discovered metal pieces on the seafloor amid the wreckage of an ancient ship. This presentation discusses how archaeologists

eventually determined that these pieces were part of a previously unknown mechanical device which is an astronomical calculator.

[history, aquatic archaeology, ancient mechanical devices, computational astronomy]

April 9, 2010 The Pioneer Anomaly

Pioneer 10 is an American spacecraft launched in 1972 to explore the planet Jupiter. As it traveled, NASA scientists noticed an anomaly: it was moving less quickly than expected. This presentation explores this scientific mystery and its eventual resolution.

[spacecraft, Pioneer model, anomaly, big data, mathematics, NASA, The Planetary Society]

August 14, 2009 Relativity and the 1919 Solar Eclipse

Einstein published his Theory of General Relativity in 1915. The 1919 solar eclipse provided one of the first tests of this theory. Learn about the problems and triumphs of this solar eclipse expedition, and how the observers helped to confirm Einstein's theory.

[history, solar eclipse, 1919, Einstein, Relativity, photography, star positions]

June 8, 2007 My Top Ten 2006 "Astronomy Picture of the Day"

In November, 2006, a reporter for a major newspaper put together his personal choice of the top ten pictures from ten years of images taken by the Hubble Space Telescope. I decided that these were not the ones I would have picked! This is a presentation of my own choices for the top ten pictures from NASA's Astronomy Picture of the Day (APOD) website for the year 2006.

[entertainment, astronomy images as art, NASA, APOD (Astronomy Picture of the Day)]

August 12, 2005 Astro-Tourism: A Meridian Line in a Church in Rome

When my wife and I traveled to Rome, we happened on an astronomical item in the Basilica of Our Lady of the Angels and Martyrs: a 300-year-old meridian line. This presentation describes the meridian line and how it was used to determine the exact length of the year and to compute the date for Easter Sunday.

[history, travel, tourism, religion, Easter, length of the year, meridian lines]

August 9, 2002 Updating Kepler's Dream: Observing the Earth FROM the Moon

In 1608, Johannes Kepler wrote a book called "Somnium", which is Latin for "The Dream". In it he explored the idea of observing the Earth from the Moon in order to teach that the Earth is turning on its axis. Learn about the problems associated with this work, and what we now know about observing the Earth from the Moon.

[history, accusations, science education in the 1600s, Moon, Earth rotation]

April 12, 2002 Stargazing for Everyone: Learn the Zodiac (Ecliptic Constellations)!

The Zodiac, or Ecliptic Constellations, is the circle of animal-themed constellations that the Sun moves through during the year. This presentation will teach you how to memorize the placement of these constellations and how they can help you to orient yourself when observing the night sky in a dark location.

[ecliptic constellations, zodiac, mnemonic song, constellation images]

March 12, 1999 Bad and Good Science in a Good Movie: "Deep Impact"

"Deep Impact", a disaster movie from 1998, showed what Hollywood thought would happen if a large asteroid were to hit the Earth. Some of the events shown actually had a basis in science, though some

were pure science fiction. This presentation will point out what they got right and what they got wrong.

[disaster movies, "Deep Impact", Hollywood movies, asteroid, science fiction, science in movies]

April 9, 1993 Computers in Astronomy: How We Know the Positions of the Planets
Did you ever wonder how software apps can tell you when and where the planets are in the sky? This presentation presents a simplified view of the solar system which allows us to understand the calculations that produce the planetary positions.

[mathematics, planetary orbits simplified, computational astronomy, calculator]

August 9, 1991 Mithraism, Astrology, and Precession

Mithraism was an ancient religion which began in Persia and was popular with Roman soldiers. While it has died out, it left behind some temples and an intriguing image: a young man killing a bull. What does this image mean, and how is it related to astrology and the precession of the Earth's rotation axis?
[history, religion, archaeology, Mithraism, Astrology, tauroctony (killing a bull), precession of Earth's rotation axis]

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