The Night Sky

Full Moon Has a "Near-Miss" with Mars at Opposition

We are in for a real treat in December! On the night of December 7th, Mars will be at opposition. At the same time, the Full Moon will pass in front of Mars on the evening of the 7th for much of the U.S. Unfortunately, from our location, the Moon will just "miss" Mars at around 11:13 p.m. EST. Since Mars is at a "favorable" opposition at a northern declination, the Red Planet will be very bright and easy to spot just off the lunar limb. Go out a few hours before closet approach and watch the Moon slowly catch up, then pass the Red Planet. Make sure you dress warmly!

At the beginning of the month on December 1st, the just past first quarter Moon lies just to the left of brilliant Jupiter. The pair are about 2½ degrees apart from each other on this evening. After midnight on December 11th, as the constellation Gemini rises watch the waning gibbous Moon approach then pass Gemini's two bright stars, Pollux and Castor. An hour before sunrise the Moon, Pollux, and Castor make a straight line on the western sky.

The ringed-planet Saturn will be visible all evening in the constellation of Capricornus in the southwestern sky. If you have access to a telescope, make sure you catch a glimpse of Saturn, the shadow of the planet on the rings gives a nice 3D view of this gas-giant planet.

We are in for another celestial treat on Christmas Eve! Low above the southwestern horizon 20 minutes after sunset, a thin crescent Moon, Mercury, and Venus form a nearly equilateral triangle. Mercury will be the planet on top of this triangle. Since this will occur in the bright twilight, binoculars, and a clear southeastern horizon, will make this grouping easier to spot. This marks the beginning of the evening appearance for Venus, which will reside in the evening sky through the middle of summer. Mercury will remain visible above the southwestern horizon for the remainder of the year and the first few days of 2023.

As stated above, December's Full Moon will occur on the 7th at 11:08 p.m. EST. The December's Full Moon is known as the Full Cold Moon by some native Americans. The Sun reaches the winter solstice at 4:47 p.m. EST on December 21st ushering in the season of winter. On this date, we have the fewest hours of daylight in the northern hemisphere.

The Geminids meteor shower reaches its peak the night of December 13-14, 2022. The Geminids are considered by many to be the best meteor shower of the year, often producing over 100 meteors per hour in a dark sky. One thing that is impressive about the Geminids is that you can see these meteors throughout the night from sunset to sunrise the next day. The waning gibbous Moon rises around 9:30 p.m. on this date, so go out before moonrise to see how many Geminids you can spot. Finally note that the Geminids often produce very bright

meteors which can be very lovely on a cold clear night. Make sure you dress warmly before going out to spot these shooting stars

December does not have any astronomy open houses scheduled at the ETSU observatory, however there is one scheduled on Saturday, November 26th from 8 to 10 pm. At these open houses, the public can view objects in the sky through telescopes and hear talks by faculty of the Physics and Astronomy Department. Note that the open houses are cancelled if the sky is cloudy. Further information about these open houses and directions to the observatory can be found on the web at https://www.etsu.edu/cas/physics/observatory/starparty.php.

For those of you who would rather explore the night sky indoors, the December 2022 planetarium show will be on December 8th at 7:00 p.m. at the ETSU Planetarium in Hutcheson Hall. A location map of the Planetarium on the ETSU campus can be found on the web at https://www.etsu.edu/cas/physics/outreach/planetarium.php for further information.

This month's Night Sky was written by Dr. Donald G. Luttermoser, Chair of the Department of Physics and Astronomy at ETSU. He can be reached at lutter@etsu.edu. Any students wishing to pursue a career in Physics or Astronomy are encouraged to contact him at this email address. Astronomy-related information for the public, including a link to the ETSU Powell Observatory, can be found at http://www.etsu.edu/cas/physics/ by selecting the Public Outreach pull down menu on the lower-left side of this web page.