# The Night Sky

## Saturn at Opposition this Month

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Last month we saw the "king of the planets," Jupiter, at opposition. This month, the ringed planet, Saturn, is at opposition in late June. Before describing the whereabouts of our solar system's gas giants, let's see what is going on in the evening sky.

Venus continues to dominate the evening twilight in the western sky and will remain visible for up to two and a half hours after sunset. Venus attains its highest sunset altitude on June 6th and brightens throughout the month – there is no mistaking which "star-like" object is Venus in the western evening sky, since it outshines all of our nighttime celestial objects except the moon. As the sky darkens, you will note the two bright stars of Gemini, Pollux and Castor, just to the upper right of brilliant Venus. In mid-June, sharp-eyed observers will spot our innermost planet Mercury hanging above the west-northwest horizon one-half hour after sunset. On June 14th, assuming one has an unobstructed western horizon, one will be able to spot a thin waxing crescent moon just to the left of Mercury.

Looking toward the southwest in the evening, Jupiter dominates the stars in that part of the sky. As one is looking at Jupiter, you will note a fainter star just to the lower-left of Jupiter. That star is the second brightest star in the constellation of Libra, Alpha Librae. Typically the ``alpha'' label is applied to the brightest star of a constellation, however this is one of the few exceptions to this rule. Another example can be found in the constellation of Orion, where the ``alpha'' star, Betelgeuse, is slightly fainter than the "beta" star, Rigel.

As mentioned above, Saturn is at opposition to the sun on June 27th. On that day, Saturn rises at sunset and sets at sunrise the following day. Unfortunately, Saturn is nearly as far south as it can get on the ecliptic (the path that the sun makes on the sky), so our ringed planet never gets very high in the sky during these summer months. Saturn's rings are near their maximum tilt which makes Saturn a beautiful view through even a small telescope. An almost-full moon is only about one degree to the upper-left of Saturn on its opposition night.

At the beginning of June, Mars is less than two months away from its closest approach to the earth since 2003. Mars continues its rapid increase in brightness throughout the month. On June 1st, Mars rises around midnight, slightly less bright than Sirius, the brightest star in the night sky. By the end of June, Mars brightest rivals the brightness of Jupiter, rising around 10:30 p.m. EDT. As the summer progresses Mars increases in size and brightness surpassing Jupiter in brightness! Mars halts its eastward motion on the sky on June 28th as the earth starts to catch Mars as they both orbit the sun. Mars then begins its retrograde (i.e., westward motion) at that point. Mars will hang low in the sky throughout the summer months.

The moon will be at full phase at 12:53 a.m. EDT on June 28th. Many Native Americans called the full moon of June as the Full Strawberry Moon since it corresponds to the time of year when strawberries are harvested. The sun arrives at the summer solstice at 6:07 a.m. EDT on June 21st, marking the beginning of summer in the northern hemisphere. The summer solstice is the northern-most point the

sun gets in the sky as the earth orbits our star.

The ETSU Powell Observatory open houses are on hiatus until September. Later this summer, the 2018-2019 schedule for our Astronomy open houses can be found on the web at http://www.etsu.edu/cas/physics/observatory/default.aspx .

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