

The September Sky

Soon after the invention of the telescope and astronomers were no longer limited to the resolution of their eyes, very small anomalous motions of the stars were discovered. As early as 1680 (the telescope was invented in 1609) Jean Picard recorded that Polaris changed position by 40" over a year. The explanation had to wait almost 50 more years and came from the research of [James Bradley](#) and [Samuel Molyneux](#). At the time, astronomers were looking for [parallax](#), and therefore the distance to the stars, but instead discovered the [aberration of starlight](#). Bradley & Molyneux firmly mounted a long focus telescope to a chimney. The top of the telescope stuck out above the roof and had a cover that opened when the observer pulled a cord next to the eyepiece in the basement. With the telescope fixed solidly to the Earth, they could observe changes in the position of stars passing through the telescope's field of view to better than 1".

The most important star they observed was gamma Draconis which passes near the zenith from London. It is bright enough to be seen through their telescope in daytime, so that observations could continue through the entire year. The correct interpretation occurred to Bradley after the death of Molyneux. The Earth's speed around the Sun is ~30 km/s and the speed of light is 300,000 km/s, a large but finite quantity. As particles of light travel down the telescope tube, the telescope must be pointed slightly into the direction of the Earth's motion to make the star appear in the same direction than if the Earth were not in motion. This was a direct proof that the Earth moves around the Sun.

*A full moon subtends an angle of about 1800".

Come and see the night sky through many different telescopes at the [Blue Grass Amateur Astronomy Club](#)'s outings at Raven Run. The remaining (Saturday) dates in 2018 are:

October 6th and November 3rd. Call [Raven Run](#) an hour before sunset to verify that the weather will be sufficiently clear.

You will find an [all-sky finder chart](#) and the PDF of this flyer at [our web site](#).

Kentucky SkyTalk

UK's MacAdam Student Observatory, designed and built in 2007, was officially opened in 2008. The Observatory is located atop Parking Structure #2 between the W.T. Young Library and the Chemistry-Physics Building, and its dome houses a high-quality 20-inch reflecting telescope plus a variety of state-of-the-art optical instruments. The Observatory is dedicated to serving UK students as well as astronomy enthusiasts of every age and experience level throughout Kentucky.

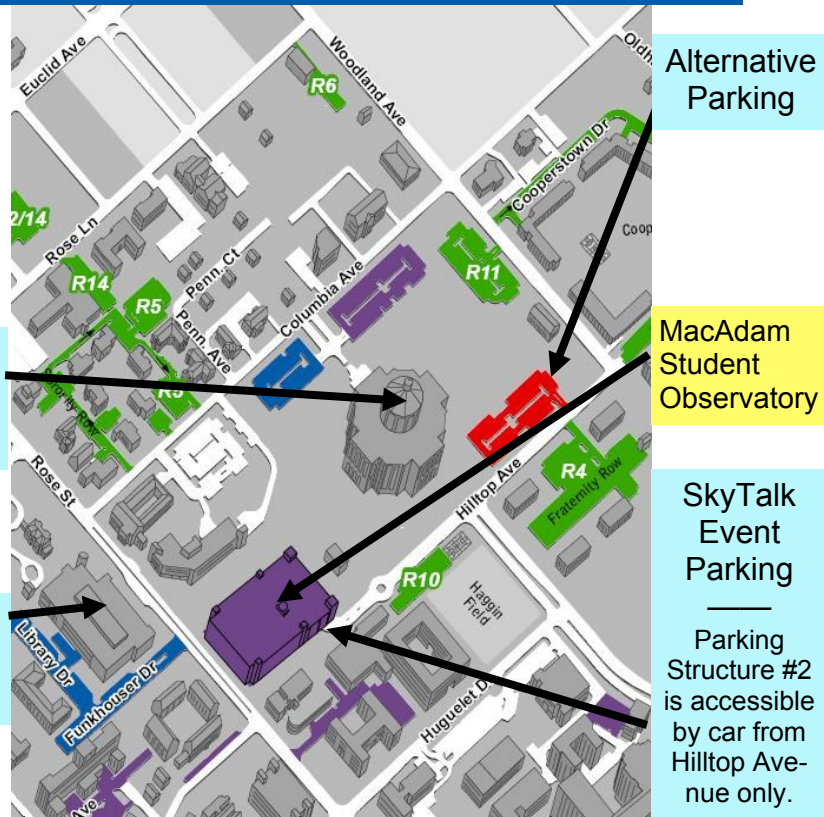
Are you interested in informal talks on astronomy and astrophysics? Are you curious about telescope design and operation? Would you care to take a look through the eyepiece?

The Department of Physics & Astronomy in UK's College of Arts & Sciences welcomes you! Join us to experience the excitement of stargazing through a powerful telescope. An up-to-date calendar of events can be found on our website:

<https://pa.as.uky.edu/observatory>



How to find the MacAdam Student Observatory



Monthly Meetings

The MSO hosts monthly public-observing sessions, each with a kick-off 40 minute presentation in the Chemistry-Physics Building. The presentations will take place even on cloudy nights. If the sky is clear, the observatory will open after the talk! Can't make the SkyTalk? Then come after!

Next month:

Speaker: Da Bi, University of Kentucky
October 11, 2018 - **7:00 PM** - Chem-Phys Room 155

Kentucky SkyTalk



Image: Miloslav Druckmuller (Brno University of Technology) Peter Aniol, Vojtech Rusin

Dr. Tom Troland — [University of Kentucky](#)

Thursday - September 13, 2018 8:00 PM

Chemistry-Physics Building Room 155

Everything About Eclipses

The total solar eclipse of last August was viewed by millions of Americans. However, such an eclipse could never be viewed by hypothetical creatures elsewhere in the Solar System. The Earth-Moon system is blessed by a cosmic coincidence found nowhere else. Plus, we can witness glorious eclipses of the Moon, with one coming up early next year. After the celestial spectacle of last August, it is time to reflect on all of the fascinating aspects of eclipses. For example, what would an eclipse look like on the Moon? When is the next total solar eclipse visible in Lexington? (Unfortunately, no one alive today will see this eclipse, absent some major medical advances!)

Tonight's *Kentucky SkyTalk* is part of an ongoing series. These are presented by the UK Department of Physics and Astronomy, and the MacAdam Student Observatory. Held every 2nd Thursday of the month, they are always free and open to the public.