



NEWSLETTER

RITTENHOUSE ASTRONOMICAL SOCIETY

Founded 1888 WWW.RITTENHOUSEASTRONOMICALSOCIETY.ORG

June 2011

OPEN TO PUBLIC AND STUDENTS

Upcoming Meeting on June 8th

7:15 PM

The Franklin

20th Street and Benjamin Franklin Parkway

June's Meeting

Open House

Ted Williams

Our last meeting of the academic year is posted on our website as an Open House. When we have promoted the night as a members night in the past, this has resulted in many asking if the meeting is open to the general public or is the evening for members only? We have decided to call the meeting an "Open House" since it is really a time for members to present to all in attendance. The general public is always invited to our monthly meetings from September through June (this excludes our business meetings held during the summer months.)

This is a meeting that members who are presenting can take pride to invite their family and friends to attend. Calling the evening an Open House will get the word out that all are welcome.

All presenters are asked to keep their presentations to a limit of 10 minutes, so that all can be accommodated. Our Open House (formerly Members Night) has become one of my favorite evenings due to the diversity of topics and presenters. I look forward to our members sharing their interest and passion. Please plan to attend our final night of the 2010-2011 academic year. Weather permitting, we will close in the observatory, Saturn should still be easily visible.

We have a great line-up of members that have contacted us wishing to share an astronomical topic or event that they can address. This year's speakers include:



Alan Daroff	Current and upcoming celestial events to be aware of
Ted Williams	Weekly Challenge update – Sights of summer
Milt Friedman	End of the year President's address
Drew Maser	Venus Transit- Getting prepared for the view
Dr. Ken Kremer	Rover Update / Endeavour Update
Denise Vacca	Most Amazing Vehicle Ever Built (Lunar Rover)
Luke Brown	Right Ascension and Declination
Joe Stieber	Attending a public star watch
Mike Mountjoy	Astronomical Software (A new Group on our Members Network)
Brian Paton	Hubble Update

President's Message

Dr. Milton Friedman

It's possible that any day now, we might find out that other life does exist in our universe and people (or what ever form they take) may be more advanced than anyone here on Earth. That discovery would outshine any other we ever had since humans first walked on Earth millions of years ago up to and including the Apollo astronauts who were the only Earthlings to ever walk on another space world when 12 of them walked on the moon.

Until we make contact with aliens, and that will happen in the near future, we will continue to look up at the nighttime sky and wonder which of the stars might have aliens on them staring down at us.

Of the 3 x 10 to the 23 power stars in the universe, 76 percent of the main sequence stars not far beyond our solar system, are classified as M stars. Although some giant stars such as Antares and Betelgeuse are in that family, most are red dwarfs. Of red dwarfs, the majority have a mass less than one-half that of our sun. Their surface temperatures are much cooler than our sun, usually less than 4000 degrees K. Of the red dwarfs, none is visible from Earth without a telescope. Also, there is no ultraviolet radiation on a red dwarf so, if life requires ultraviolet as it does on Earth, life will not arise on a red dwarf. On a red dwarf, radiation is emitted in the infrared range.

Red dwarfs consume their hydrogen very slowly having 10 percent of the luminosity of the sun. These stars are thought to last trillions of years whereas our sun has a life of 12 billion years.

Why all the fuss over a tiny, faint star? Apparently there may be Earth-like planets orbiting M stars. One of these, Gliese 581, is thought to have six extra solar planets orbiting it of which one or two may be similar to Earth. Based on that, M stars may be some of the best places to search for life.

A Successful Shuttle Launch

Joe Rao

The on-time liftoff this morning of Endeavour from the Kennedy Space Center, combined with a two-day extension of the STS-134 mission to 16-days, sets the stage for two spectacular Shuttle/ISS passes over the Tri-State Area in two weeks.

According to the Master Flight Plan outlined by William Harwood at the Spaceflightnow.com site, the orbiter is scheduled to undock from the ISS at 11:53 p.m. EDT on May 29. For the next 283 minutes, Endeavour will fly in close proximity around the ISS.

Visible Planets 06/08/2011

	Rises	Transit	Sets
Mercury	05:11 am	12:36 pm	08:03 pm
Venus	04:31 am	11:41 am	06:51 pm
Mars	04:03 am	11:08 am	06:13 pm
Jupiter	03:11 am	09:50 am	04:29 pm
Saturn	02:38 pm	08:34 pm	02:30 am

That is just about where the Sensor Test for Orion Relative Navigation Risk Mitigation (STORRM) Apollo-style rendezvous test puts Endeavour at its closest approach -- about 1000 feet below and 300 feet behind the ISS, just prior to the third and final separation burn, which is scheduled to occur at 4:36 a.m. EDT on Memorial Day Monday, May 30th.

See: <http://spaceflightnow.com/shuttle/sts134/110421storm/>

Just 10 minutes later, at 4:46 a.m. EDT, the ISS and Endeavour are scheduled to make a 4-minute, 32-degree pass over New York. The immediate post-undocking two-line orbital elements (TLE) and the TLE after final separation are 1.5 km apart, almost entirely in altitude above the Earth.

At culmination, that would result in a difference between the ISS and Endeavour of about 7 arc minutes!

For comparison, the gap between Alcor and Mizar in the Big Dipper's handle (which they conveniently pass above) is a shade less than 12 arc minutes. So on this pass, we will have an object of -1 magnitude, leading a second object of -3 magnitude, and separated by only about one-quarter the apparent width of the Moon! Binoculars will no doubt help in separating these two space vehicles. This will happen near the start of civil twilight, so the sky will be quite bright, but certainly the ISS and Endeavour should be readily seen given clear skies.

Then . . . the following morning . . . Tuesday, May 31 . . . both vehicles will move out of the Earth's shadow at 3:35 a.m. EDT. At the moment that they become visible they will already be very close to their culmination . . . 78-degrees high above the southeast horizon as seen from New York.

Endeavour would lead ISS by about 30 seconds. At culmination, that is equivalent to about 38 degrees along-track. The two vehicles will be visible for about another minute, then should disappear beyond the northeast horizon.

So . . . quite a show is in store for us in a couple of weeks! Let's hope that the weather cooperates, for this will be the very last time that we'll get a chance to wave good-bye to Endeavour before it ends up as an exhibit at the California Science Center.

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