



NEWSLETTER

# RITTENHOUSE ASTRONOMICAL SOCIETY

Founded 1888 WWW.RITTENHOUSEASTRONOMICALSOCIETY.ORG

September 2009

OPEN TO PUBLIC AND STUDENTS  
Upcoming Meeting on September 9th at  
7:30 PM  
The Franklin  
20th Street and Benjamin Franklin Parkway

## September's Meeting:

*“Fixing Hubble: Eyewitness to Shuttle Atlantis Launch to save The People’s Telescope”*

*Dr. Ken Kremer*

*NASA Ambassador, The Planetary Society*

NASA’s final human spaceflight mission to the iconic Hubble Space Telescope was dramatically accomplished by Shuttle astronauts in May 2009. Dr Ken Kremer will present an up close eyewitness account of the thrilling launch of Space Shuttle Atlantis from the Kennedy Space Center on its historic mission to restore and upgrade Hubble to the apex of its scientific capabilities. Ken will speak on the highlights, purpose and success of the daring shuttle flight STS -125 to save ‘The Peoples Telescope’. He will present a behind the scenes perspective with top NASA and Hubble scientists while reporting in real time for The Planetary Society and Spaceflight magazine. Read Ken’s first hand press reports online exclusively at The Planetary Society and the Rittenhouse Astronomical Society.

Dr. Kremer is a research scientist and science journalist whose articles and space exploration images have appeared in magazines, books and on websites, including Astronomy Picture of the Day, ABC News, Spaceflight Now, New Scientist, International Year of Astronomy, The Planetary Society, Universe Today and the covers of Aviation Week & Space Technology, Spaceflight and the Explorers Club magazines. His numerous presentations at educational



*Ken Kremer and Shuttle Atlantis at Launch Pad 39 A at the Kennedy Space Center, FL on 10 May 2009 on the day before blastoff to Hubble.  
Credit: Ken Kremer*

institutions, civic & religious organizations, museums and astronomy clubs aim to educate and excite kids and adults about science and space exploration.

## October's Meeting

*Members Night*

Every year we have a month that is reserved as “Member’s Night”, where members of Rittenhouse Astronomical Society present topics of interest to them to the group. We are looking for some volunteers to present at the October meeting. So far, we have five volunteers to present a topic of their interest, but there is room for many more presenters. Please consider sharing your ideas, thoughts, experiences with the Rittenhouse membership.

### Meeting Agenda

7:20 - Prelude
7:30 - Astronomy Lesson
President's Message
Sky This Month
Guest Speaker
Rooftop Observing - Weather Permitting

### Visible Planets 09/09/2009

	Rises	Transit	Sets
Mercury	06:18 am	01:59 pm	07:40 pm
Venus	04:02 am	11:02 am	06:02 pm
Mars	12:57 am	08:25 am	03:54 pm
Jupiter	06:08 pm	11:14 pm	04:20 am
Saturn	07:09 am	01:26 pm	07:42 pm

## Up Close with NASA's LRO and LCROSS in the "Clean Room" and at the Launch Pad

*Dr. Ken Kremer*

While I was reporting from the Kennedy Space Center press site on the mission of Shuttle Atlantis to upgrade the Hubble Space Telescope, there were also firsthand opportunities to check out hardware and facilities associated with other current aspects of space exploration such as NASA's newest lunar missions: the Lunar Reconnaissance Orbiter (LRO) and the Lunar Crater Observation and Sensing Satellite (LCROSS)

I had an exceptional chance to inspect up close the integrated LRO and LCROSS combination spacecraft stack inside the "Clean Room". I participated in a NASA sponsored media tour of the two spacecraft for the very last pre-launch photo opportunity and briefing with science team members at the Astrotech Space Operations Facility in Titusville, FL, located a few miles away from the Kennedy Space Center (KSC). Access to the spacecraft is strictly regulated by NASA and Astrotech and only possible with my press credentials from The Planetary Society and Spaceflight magazine.

Astrotech is an aerospace company that processes and manufactures space hardware for earth orbiting and deep space applications for the government and private firms.

We entered the garment change room and were furnished with the full complement of clean room attire, otherwise known as "bunny suits," which includes full body personal protective equipment (PPE) suits, face masks, gloves and static dissipating shoe covers all of which must be worn. Everyone's camera equipment was required to be wiped clean by contamination-control specialists. Our shoes were mechanically brushed with a rotary brush shoe cleaner.

As a research scientist, I wear this type attire to protect myself when handling certain toxic chemicals. In this case of role reversal, the purpose is to protect the spacecraft from contamination by us humans.

After passing through secure access doors, an air shower and an airlock we finally entered the High bay/Encapsulation clean room area. We observed the LRO/LCROSS spacecraft stack sitting adjacent to and sandwiched between the twin halves of the decade 4 meter wide Atlas V payload fairing and nose cone, barely a few hours prior to their encapsulation. The two fairing sections were joined together later that same day.

I was in absolute awe of the two oddly shaped ships with numerous apparati jutting out in all directions. And not

just to me. Even mission team members were awe-struck because many had never seen the two spacecraft together. It's even more amazing when I consider that these 2 ships I saw and was close enough to touch have now arrived at and swung past the moon. A few days later, I traveled onto the Air Force Base and went directly inside launch Complex 41 and stood right next to the Atlas V rocket with 1 million pounds of liftoff thrust.



*Solar arrays power science for LRO (top, left) and LCROSS (bottom, left) in the "Clean Room" at Astrotech Space Operations Facility nearby Kennedy Space Center: Ken Kremer adjacent to LCROSS panel with 9 science instruments (gold color) which reside just above, left of my garbed head. Payload fairing in background. One month before lunar blast-off on June 18, 2009. Read my mission reports online at The Planetary Society.*

*Credit: Ken Kremer*

NASA's long awaited 'Return to the Moon' was at last reignited on June 18, 2009 as LRO and LCROSS roared off launch pad 41 at 5:32 PM EDT aboard an Atlas V/Centaur rocket at Cape Canaveral Air Force Station (CCAFS), FL.

LRO will map the moon from polar orbit and study the lunar chemical composition and environment. LCROSS will touch the moon directly by deliberately crashing inside a dark lunar crater near the south polar region on 9 October 2009, hunting for frozen water ice and thereby provide ground level composition data.

For complete details on LRO and LCROSS, please read my published reports listed below which can be found online at The Planetary Society and the RAS Homepage and which include numerous pictures of the spacecraft and Atlas rocket.

## MORE on LRO & LCROSS

*Dr. Ken Kremer*

Learn more about LRO & LCROSS at my upcoming lectures below, including at the September 8 monthly meeting of the Amateur Astronomers Association of Princeton (Princeton University, NJ) and a brief update at the October 14 RAS meeting.

Check out the June 2009 issue of the RAS newsletter and the RAS Homepage for my Hubble mission reports online at The Planetary Society which is my lecture topic for the upcoming September 9 RAS Monthly Meeting. Also read my article featured in the August 2009 issue of Spaceflight magazine here:

<http://www.bis-spaceflight.com/sitesia.aspx/page/183/id/2046/l/en-gb,en-gb,en-us>

### LRO/LCROSS reports online at The Planetary Society & RAS

LRO & LCROSS Up-Close Tour <http://planetary.org/blog/article/00001947/>

LRO & LCROSS UP Close Tour: Part 2, Hunting for Lunar Water <http://www.planetary.org/blog/article/00001977/>

LRO & LCROSS Up Close Tour: Poised on Atlas V Rocket at Launch Complex 41 <http://www.planetary.org/blog/article/00001984/>

LRO & LCROSS: 1 Day Launch Delay <http://www.planetary.org/blog/article/00001986/>

LRO & LCROSS: Ready to Roll to Pad 41 <http://www.planetary.org/blog/article/00001991/>

LRO & LCROSS: Launch! [http://www.planetary.org/news/2009/0618\\_Blog\\_LRO\\_and\\_LCROSS\\_Launch.html](http://www.planetary.org/news/2009/0618_Blog_LRO_and_LCROSS_Launch.html)

New Updates on LRO and LCROSS <http://www.planetary.org/blog/article/00002004/>

LRO & LCROSS: One-on-One Chat with LCROSS Scientist Kimberly Ennico [http://www.planetary.org/explore/topics/lro/lcross\\_Interview.html](http://www.planetary.org/explore/topics/lro/lcross_Interview.html)

LRO and LCROSS Enter their Respective Orbits [http://www.planetary.org/explore/topics/lro/lro\\_lcross\\_insertion.html](http://www.planetary.org/explore/topics/lro/lro_lcross_insertion.html)

### My upcoming Astronomy talks include:

Amateur Astronomers Association of Princeton: Princeton, NJ, Sep 8, Tue, 8 PM. "Eyewitness to LRO & LCROSS: America Returns to the Moon" Website: <http://princetonastronomy.org/activities.html>

Rittenhouse Astronomical Society (RAS) at the Franklin Institute: Philadelphia, PA, Sep 9, Wed, 8 PM. "Fixing Hubble: Eyewitness to Shuttle Atlantis Launch to save The People's Telescope" Website: <http://www.rittenhouseastronomicalsociety.org>

Rittenhouse Astronomical Society (RAS) at the Franklin Institute: Philadelphia, PA, Oct 14, Wed, 8 PM. "Eyewitness to LRO & LCROSS: America Returns to the Moon"

Stella Della Valley Star Party & Bucks-Mont Astronomical Association (BMAA): Ottsville, PA, Oct 17, Sat, 3 PM. "Fixing Hubble: Eyewitness to Shuttle Atlantis Launch to save The People's Telescope" Website: <http://www.bma2.org/Sdv.html>

UACNJ Astronomy Symposium: Hope NJ, Oct 18, Sun, 2 PM. "Eyewitness to Hubble/Shuttle Launch & Personal Postcards from Mars" Website: <http://www.uacnj.org/>

NJ Gifted Children at Mercer County Community College: West Windsor, NJ Oct 24, Sat, 9 AM. "Twin Robots Exploring Mars (IN 3-D)" Website: <http://www.njagc.org/>

Gloucester County College Astronomy Club: Sewell, NJ, Nov, TBD, 7 PM. "Fixing Hubble: Eyewitness to Shuttle Atlantis Launch to save The People's Telescope" Website: [http://www.gccnj.edu/news\\_and\\_alerts/rotating\\_ads/ken\\_kremer.cfm](http://www.gccnj.edu/news_and_alerts/rotating_ads/ken_kremer.cfm)

### Please contact me by email for more info or presentations.

Dr. Ken Kremer Email: [kremerken@yahoo.com](mailto:kremerken@yahoo.com)

NASA JPL Solar System Ambassador & The Planetary Society

Website: <http://www.rittenhouseastronomicalsociety.org/Dr.Kremer/K.htm>

## Membership Renewal/New

We want to welcome you back for our 2009-2010 academic year. As has been our recent practice, we encourage members to renew their memberships at this time. If we can have a majority of members renew in September, it saves us volunteer time to maintain the database. We accept members throughout the year but we appreciate it if you decide to renew now. Dues are \$20.00 per year. Our membership benefits are listed on our website. If you are new to our society, this is an excellent time to join us with your support through your membership. Everyone is welcome to bring friends and colleagues to our meetings, it is not mandatory to join, but we certainly appreciate your support. We welcome those who are new to our society, and look forward to the return of current members. Ruth List, our treasurer, will be at our September 9 meeting with our data base for updating and verification of your contact information.

This past January we started an optional networking group which is offered to those who support us through their membership. We have about 30 members currently on the network (about 1/3 of our membership base.) It may prove to be an excellent way to allow members to communicate between meetings. Members may converse about astronomical topics or topics of interest. You are not required to join our network, it is new optional benefit of membership. We look forward to expanding our on line community. If you are a member and have not received an invitation to join, we may have an incorrect e-mail contact for you on our data base (or none at all.) All current members that have provided an e-mail contact to us have been invited.

## Driving the Milky Way

*Dr. Milton Friedman*

Come and learn about our new “group project” for International Year of Astronomy at our September meeting.



## President’s Message

*Dr. Milton Friedman*

Time flows in one direction. On June 10th when we last met at the Rittenhouse Astronomical Society, there were 14 hours and 57 minutes of daytime. Nighttime arrived here at 8:29 p.m. so we had to rush out to examine the stars and planets because the late sunset and early morning arrival of sunrise limited our hours for observing. Our September meeting on the 9th will give us more time to spend with the nighttime sky as daytime is cut to 12 hours, 42 minutes. In September, the nights are longer than in June and the fall constellations make their yearly return to greet us.

We have exciting programs of speakers and subjects as well as observing, if the weather is clear, at our monthly meetings that will please all of you whether you’re an expert in astronomy or a novice just getting started. It is always your decision what to do at our meetings. You can ask us questions or give us input. However, you are welcome even if you prefer to just enjoy quietly listening and observing. Whatever your desire, there’s a place for you at the Rittenhouse Astronomical Society meetings.

## Your Officers and Members-At-Large

President.....	Milt Friedman
Vice-President.....	Alan Daroff
Secretary/WebMaster.....	Ted Williams
Treasury/Newsletter.....	Ruth M List
NASALiaison.....	Dr. Ken Kremer
Instructional Technology Advisor.....	Mike Mountjoy
Fels Planetarium Liaison.....	Dave Walker
Observatory Liaison.....	Carol Ludolph
Student Liaison.....	Daniel McCormick
Science Journalist.....	Eric Van Osten
Amateur Cosmologist.....	Ivin Williams

Our **NEW** Mailing Address:

**Rittenhouse Astronomical Society**  
**P.O. box 283**  
**Feasterville, PA 19053-0283**