COWICHAN VALLEY STARFINDERS ASTRONOMY CLUB

Clear Skies

Volume 14, Issue 6 October 2009

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Greetings!

Welcome to the Cowichan Valley StarFinders Astronomy club's "Clear Skies" monthly newsletter.

Happy belated Thanksgiving to all. I hope you have had one filled with friends, family and laughter because really….we do have a lot to be thankful for on the Island. I spoke to my folks in Edmonton who tell me they are already on their second snowfall of the year!

But you know, the colder weather also brings clearer skies; and it is good to see the activity picking up on the club "listserve." Gorilla observing is "popping" up everywhere. We also have had requests for Star Parties from various organizations and local school. One such school "Cobble Hill" had a party on Sept 15 which has attendees of approximately 200 people. We have received thank you letters and we even made the local paper. Check out "Featured Articles" for more information on the event.

There has also been a lot of suggestions and possibilities and searches for a new home of the Island Star Party. Keep up the good work everyone, I am confident we will find a site soon.

This month is full of activity check out the "Upcomming Events" for all the happenings.

While doing our monthly scouring of the web, we found a neat "phases of the Moon" applet that is free to astronomy clubs. We have added it to the main page of our website. For the first visit to the site you may be asked to allow the applet please allow so you can always know what phase of moon we are currently in. Let us know what you think by emailing us at: newsletter@starfinders.ca

Many thanks to Robert Deane for providing a great introduction to the "Mystery Moon Near Saturn." it is a wonderful self explanatory video with great animation and photos. For those of you who missed the social, the dvd is part of the club's library so let us know if you would like to borrow it.

At the time of this writing wel have not heard of who our speaker for this month's social will be, so keep checking your emails as we will send confirmation of speakers and topics prior to the social.

An finally, thanks to this month's contributers Moe Raven and Bryon Thompson for their input and enthusiasm.

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Socials

Socials are held on the **4th Wednesday of each month** at the home of Bryon and Freda. See the website for a map or follow these directions.

Island Hwy, Mill Bay
Turn on Frayne Rd towards ocean (Serious Coffee is on the corner)
Turn right on Huckleberry Rd
3rd house on the left across from Springbank road and Mail boxes.
Look for the STAR sign
Please park on Huckleberry or Springbank Rd's.
Call Brian 743-6633 if you need directions

Our next Social will be held at **7:30 on WEDNESDAY October 28th**
The feature is TBA, so please keep checking your email or the website for updated information .

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Highlights - Sept 23/09

By Paul Randall

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Upcoming Events

Every Monday - Astronomy Café from 7:30pm - 9:00 pm
Get together with local astronomers at the Fairfield Community Centre to discuss the night sky over coffee. On clear nights, there is observing too. Perfect for people interested in starting this hobby. All ages welcome.

Oct 2 to 25, from 12:00 to 4:00pm Display and Telescope Demonstration at 3147 Douglas Street (Mayfair Shopping Centre), Victoria
Victoria Centre along with volunteers from UVic and HIA/NRC are hosting the exhibit. Volunteers will be on hand to answer questions from the public. Admission FREE

Oct 16 at 7:30 - GALILEO AS ARTIST AND SCIENTIST- An Orion Lecture by Dava Sobel at UVic, B150 Science Building, Victoria
Best-selling author Dava Sobel will give this free public talk and she will also be performing with the music ensemble "Galileo's Daughters" on October 17 with the Early Music Society of the Islands. Admission FREE.

Oct 17 at 7:10 - "Galileo's Daughters" with Dava Sobel (narrator) and Ron McFarlane (lute) atAlix Goolden Hall, 907 Pandora at Quadra, Victoria
A multi-media tribute to the great astronomer. Music of 17th century Italy is complemented by spectacular projected images of the cosmos and the narration of best-selling author Dava Sobel (Longitude, Galileo's Daughter). Introduction at 7:10 pm by Robert Holliston Admission Adults $25; Seniors/Students $22. More information is available at the event website

Oct 17 from 6:30 – 9:00pm – "**Night Sky Viewing" 907 Pandora Avenue**
Weather permitting the Victoria Centre volunteers will have telescopes in front of the Alex Goolden Hall for viewing planet Jupiter and its moons. The Early Music Society of the Islands is organizing music performance of 17th century Italy. Observing FREE.

Oct 19, from 6:30 to 10:30 - Movie Night! "Contact" At the Dominion Astrophysical Observatory, Victoria
If you love the movies and want to learn about the science behind the classic film "Contact" join Dr. James Di Francesco (NRC-HIA) as he explores the facts and fictions in this moderated version of the film. Bring you lawn chairs and imaginations as we screen this inspiring film on the giant dome of the mighty Plaskett Telescope! We are proceeding with this rain or shine so please dress accordingly for this FREE family friendly event. For further information please call (250) 363-8262.

Oct 21, 28 Nov 4 – "Reach for the Stars" 7-9 p.m Swan Lake Christmas Hill Nature Sanctuary, Victoria

In this three evening course, we'll learn some simple techniques for making sense of the stars and learn what the night sky tells us about our place in the universe. Telescopes provided. $80 for non-members. Call 250.479.0211 to register.

Oct 23, from 2:30 to 3:30pm "A sense of scale" at Nellie McClung Library, Victoria
Dr. Alan McConnachie from the Herzberg Institute of Astrophysics will be delivering a presentation entitled "A sense of scale" which is geared towards children. Admission FREE

Oct 24, from 10:30am to 11:30am "How we find planets around other stars" at Emily Carr Library, Victoria
Dr. Brenda Matthews from the Herzberg Institute of Astrophysics will be delivering a presentation entitled "How do we find planets around other stars" which is geared towards children. Admission FREE

Oct 25, from 1:30pm to 3:30pm "Music of the Spheres" at Royal Theatre, Victoria
A lively programme created for children and their families combining astronomy with a dramatic musical adventure through space. Written and conducted by Victoria Symphony Music Director Tania Miller. The concert is proceeded by one hour of astronomy activities with Centre of the Universe staff and Symphony volunteers, and an instrument petting zoo. Solar viewing, weather permitting, with volunteers from Victoria Centre, Royal Astronomical Society of Canada
Admission: $29.50, $22.50, $20.50, $14.50

Oct 25 from 1:00 – 4:5 0 and 7:00 – 8:50pm "The Tme Travellers Wife" at Student Union,Cinecenta theatre, UVIC, Victoria
The book is richer, but this is a solid, endearing telling of the same essential story, and is well worth it for those who appreciate romantic fantasy. Admission: Non-members: $7.25 see event site for times http://www.cinecenta.com.

Oct 28, 1:30 pm - "Canadian Aboriginal Views of the Night Sky: Has Their Time Returned?" at Cowichan Campus, Room 156, Duncan.
Speaker: Andy Woodsworth (Galaxy Consulting, Victoria) & Jim Hesser (National Research Council, Herzberg Institute of Astrophysics, Victoria) Throughout history, peoples the world over have carefully observed objects in the sky. Many cultures created rich stories to help them remember and transmit to future generations their assiduously acquired astronomical knowledge useful for agriculture, seasonal migrations, rituals, etc. In our illustrated presentation we'll review progress towards the IYA vision developed with our First Nations collaborators, while also showing some of the ways in which Canada excels in modern astronomy. Admission FREE contact Helene Demers Number: 1-250-746-3539.

Oct 30 – Nov12 Victoria Comic Book and Sci-Fi Fantacy Convention at Harbour Towers Hotel, Victoria.
Editor Note: I know Paul R was looking for Volunteers for this event. I'm not sure if they still are however if you are intersted contact us and we will pass it along.
Admission Day Pass: $20, Weekend: $30.

NASA Launches (provided by NASA.Com):

Date: Oct. 27 +
Mission: Ares I-X Flight Test
Launch Vehicle: Ares I-X
Launch Site: Kennedy Space Center - Launch Pad 39B
Launch Window: 8 a.m. - 12 p.m. EDT
Description: The Ares I-X flight test is NASA's first test for the Agency's new Constellation launch vehicle -- Ares I. The Ares I-X flight will provide NASA with an early opportunity to test and prove flight characteristics, hardware, facilities and ground operations associated with the Ares I.

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This Month In History

Courtesy of: Nick Greene, About.com

- 1 - NASA's 51st Birthday (1958)
- 1 - Soyuz TMA-16 Soyuz FG Launch (International Space Station 20S)
- 4-10 - World Space Week
- 5 - Mercury at Greatest Western Elongation
- 9 - Draconids Meteor Shower Peak
- 12 - Cassini, Titan Flyby
- 21 - Orionids Meteor Shower Peak
- 30 - 10th Anniversary, Discovery of the Los Angeles Meteorite (Mars Meteorite)
- 31 - Asteroid Ceres in Conjunction With Sun.

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Cool Pics/Videos

Want to show off your latest pics? Well here's your chance; email the editor at My Cool Pics and we will try to post them in the next edition of "Clear Skies".

This video was previously on the Victoria RASC mailing list. It was sent to us by one of our duel members (you know who you are) and it is a perfect example of where we fit in the Universe. PS this is one of Bryon's favourite songs to sing for Astronomy day. Check it out
http://dingo.care-mail.com/cards/flash/5409/galaxy.swf

Check out our Photo gallery on the website where you can find pics from past and current Island Star Parties (ISP). Quick link is
http://starfinders.ca/photogallery.htm

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Featured Articles

Articles

RETURN TO CATEGORIES

1. *Student Project Puts Internet Users in Control of Their Own Universe*
2. *Star Party a Big Hit*
3. *Astronomers Big on Power Smart's Battle against Light Pollution*
4. *The Ghost Hunt's 109 Targets*
5. Spitzer Discovers Saturn's Largest Ring
6. *Two Words - Nuclear Batteries*

Student Project Puts Internet Users in Control of Their Own Universe– September 4/09 credit Southern IL University Edwardsville

Thanks to the work of two Southern Illinois University Edwardsville (SIEU) students, visitors to a popular web site can choreograph their own tours of the universe. Software written by Jarod Luebbert and Mark Sands gives almost 250,000 users of Galaxy Zoo the chance to fly through Microsoft's WorldWide Telescope (WWT) from galaxy to galaxy. The release marks the inclusion of data provided by Galaxy Zoo in the new version of WorldWide Telescope released September 2.

Galaxy Zoo invites anyone with an Internet connection to help astronomers explore the universe. Visitors to the site are asked to classify galaxies drawn from the robotic Sloan Digital Sky Survey, dividing those with beautiful spiral arms from the rest. With more than 100 million classifications received to date, many users have built up stunning collections of their personal favorites.

Microsoft Research's WorldWide Telescope is an interactive virtual observatory that allows users to browse the results from some of the world's best telescopes, including the 1 million galaxies of the Sloan survey. The team behind WWT needed to know which of their galaxies to mark as elliptical and which as spiral — and for that they turned to Galaxy Zoo. "We were able to take their data, along with the Sloan color data and create a whole bunch of different templates of which we had the sizes of the galaxy correct, the shape of the galaxy correct, the color of the galaxy correct, and its position in the sky correct," said Jonathan Fay of Microsoft Research.

Having helped provide a more accurate vision of the sky for all WWT users, the SIUE team wanted to provide something special for the Galaxy Zoo users who have made it all possible.

"We put a lot of hard work into this," Luebbert said. "We hope you enjoy it and

learn something new." With a click of the mouse, people viewing WWT-Galaxy Zoo tours can learn more about the objects being viewed through hotlinks to astronomy research sites and through easily displayed layers of extra information.

"One of the greatest parts of working with Galaxy Zoo is stumbling across a gem of a galaxy — a system so beautiful that the hope of finding another keeps a person clicking all night," said Luebbert and Sand's academic advisor, Pamela L. Gay. "Now it is possible to share these jewels with people who can't see my screen. I'm extremely proud of Jarod and Mark. Working with Microsoft Research, they've made it possible for all of us to inflict our favorite galaxies on everyone in our lives.

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Star Party a Big Hit– September 18/09 credit The Citizen

Cobble Hill School's gym and later its playing field was jammed Tuesday night as eager parents and students joined members of the Royal Astronomical Society of Canada and the Cowichan Valley Star Finders in a "star party."

CREDIT: Lexi Bainas, Citizen
Cobble Hill Elementary's Cole Allen glues his eye on the sky at a star party held this week at the school

The sky was clear and everyone was excited as they arrived for a brief talk about stargazing put on by CVSF School Coordinator Sid Sidhu and fellow member, Dave Bennett.

The star party was coordinated by teacher Hayley Henderson and a host of volunteers from the CVSF, in honour of the International Year of Astronomy, which marks the 400th anniversary of Galileo's discovery of the moons of Jupiter with his telescope.

It was a great night to see Jupiter, too, and a dozen telescopes set up out on the field drew both children and their parents like magnets, once night sprang into the sky, to view the big planet's four moons and look at other stars, under the direction of the club's members.

Henderson encouraged students to consider astronomy as a subject for future science fair projects as the field offers lots of fascinating opportunities. There were also special handouts and star charts for families to use at home and Bennett followed Sidhu's talk on astronomy with some sound advice for parents looking at purchasing a telescope plus proper star-viewing etiquette.

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Astronomers Big on Power Smart's Battle against Light Pollution– March 26/09 credit bchydro.com

Editor Note: *I realize that this was posted on BC Hydro's news site and that some of you have previously seen this. But with the days getting shorter, I believe we all need a reminder about light pollution.*

It took a trip to Saltspring Island for amateur astronomer John McDonald's grandkids from Vancouver to see the milky way for the first time. But for McDonald, it's the story of a group of visiting Tokyo schoolkids that hammers home the allure of the elusive dark sky.

"These kids were staying at a fairly dark place up island," says McDonald, a retiree who lives in Victoria. "Someone took them out at night to show them the milky way… and they couldn't' get them to go back in.

"These kids had never seen a star except the sun."

McDonald and other B.C. star-gazers couldn't be happier to hear that BC Hydro Power Smart has launched a campaign to fight light pollution that includes rebates on flat lens streetlight products. To them, the need is significant and the timing is perfect – the United Nations has declared 2009 the International Year of Astronomy, an initiative that coincides with the 400th anniversary of Galileo's use of the telescope.

It's not just about dark skies

And if you're thinking that an astronomer's battle against light pollution is just a tad self-serving, think again. Before we start talking about the stars, McDonald has already dealt with a laundry list of light pollution costs – wasted energy, wasted money, dangerous glare for drivers and detrimental effects on wildlife, including birds and fish.

"I think most of us are very keenly aware of the fact we're using up energy, and that there's a cost to it," says McDonald, fresh off a trip to Costa Rica in which he shot a mind-blowing time-lapse video of the sky throughout the night. "And the amount of energy that is wasted in lighting up the bottoms of clouds and sending light off into space to do nothing is a considerable expense. It's billions of dollars in North America."

Our 'addiction' to light

Most of us think that the brighter the outdoor lighting, the better. McDonald thinks that attitude is a byproduct of growing up in an age here in B.C. where "hydro power has been basically a free service". He speaks of us being addicted to light while largely ignoring the costs of that addiction.

In 1996, at the request of the US Congress, the National Institute of Justice conducted a landmark assessment of crime and violence in the United States. The study found little research to support the idea of "brighter-is-safer", and even suggested that in some circumstances poorly designed illumination might actually increase personal vulnerability.

"There's nothing worse than having somebody with motion security lighting," says another astronomer, Paul Greenhalgh of Abbotsford. "To me it's not security at all, it's illumination. The day that a streetlight walks into court and testifies that this guy did what he did – that he stole that car - is the day I'll eat my telescope."

A billion bucks in wasted energy

Inefficient and excessive night lighting causes significant loss of energy globally. In North America, the energy wasted in illuminating the sky is estimated at a billion dollars. Good, clean outdoor lighting improves visibility, safety, and a sense of security, while minimizing energy use, operating costs, and ugly, dazzling glare.

There are three types of light pollution:

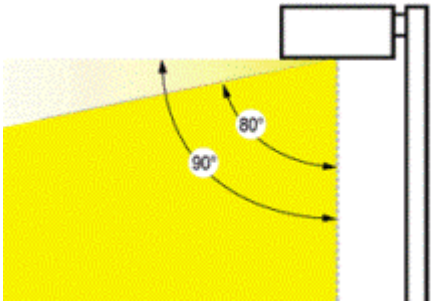
- Light trespass, which occurs when light crosses property lines. Poor outdoor lighting shines onto neighbours' properties and into bedroom windows, reducing privacy, hindering sleep, and giving the area an unattractive look.
- Glare, which comes from an overly bright source of light compared to background lighting levels. Glare is light that beams directly from a lamp into your eye. It serves no purpose and hampers the vision of pedestrians, cyclists, and drivers. If you can see the bright lamp from a distance, it's a bad light. With a good light, you see lit ground instead of the dazzling lamp.
- Sky glow, which spills upward from urbanized areas and blocks the view of the stars

If we were to think of lamps as taps and leaking light rays as drops of water, we would never tolerate it. But, we seldom think about the impact of light pollution.

Reducing light pollution has a variety of benefits, including energy savings and helping eliminate light exposure that disrupts sleep cycles, causes fatigue and strains the immune system.

What we can do to help

Greenhalgh's Fraser Valley Astronomers Society has successfully lobbied the City of Abbotsford to apply a new policy to streetlighting. All new streetlamps in the city will be fitted with full cutoff lighting, which all but eliminates light not central to the task of lighting the street. And all existing lamps will be retrofitted with full cutoffs as part of their ongoing maintenance cycle.



Power Smart is out to remind people that we all have the power to help reduce light pollution and save energy and money, both with the lighting choices we make at home and the choices we make at our businesses.

Here's a short list of things we can do:

- Assess your requirements. Ask yourself if the lighting is really needed. If so, determine what area has to be lit, how much illumination is needed, and when is the lighting required.
- Adopt "part-night lighting" by turning off non-essential lights after midnight. You save energy and money.
- Install timers or motion sensors to turn your security lighting on only when needed. You save energy and money.
- Adjust your security and outdoor lights so that they do not trespass into your neighbours' house. Casting light onto adjacent areas is a waste of energy
- Direct light where it is needed. Use lights that shield the lamp and direct the light down rather than out and away.
- Avoid glare. A luminaire that emits a concentrated beam of light offers better visibility than one that shines light in all directions. In certain cases, glare can compromise safety.
- Choose the most efficient lamps. Certain types of lamps consume less energy than others with the same light output. Choose lamps with a high lamp efficacy such as CFLs.
- Choose the right luminaire. Light directed towards the sky does not improve night vision.
- Choose luminaires that have a flat lens and a shield that completely shades the upper surface of the lamp or are classified as cut off and full cutoff by IESNA (Illumination Engineering Society of North America). The lamps sit back further in these luminaires causing the light to be cast down rather than out to the side. Therefore light cannot escape above 90 degrees horizontal plane. You can even install the lights under balconies and eaves.

How BC Hydro is fighting light pollution

BC Hydro is doing its part to reduce light pollution and help its customers save energy and money. Some of BC Hydro's initiatives that help customers reduce light pollution and save energy include:

- In-store instant discounts on ENERGY STAR light fixtures and ENERGY STAR Specialty CFL lamps. These lamps use up to 75% less energy than regular incandescent lamps.
- Mail in rebates for the purchase of ENERGY STAR CFL lamps.
- Funding for studies to determine how municipalities can use adaptive street lighting to reduce street lighting levels without impacting safety. This will help municipalities dim their street lights by up to 50% during low traffic periods.
- Incentives for business customers to install lighting controls such as timers and occupancy sensors to turn off lights when lighting is not required.
- Incentives for municipalities and businesses to install ornamental streetlights with high efficiency lamps with flat lenses. The fully-shielded flat-lens lamps do an equally good job of illuminating the road by directing the light to where it is needed without sending light up into the sky or out into your eyes. The ground and roadway will be well illuminated. And, because no light is wasted, a lower wattage lamp can be used to illuminate the desired

area.
- Technical and financial assistance to customers who plan to reduce their lighting energy consumption by re-designing their lighting and de-lamping to reduce over illumination.
- Lighting design tools and financial incentives for developers and builders of new buildings.
- Funding for energy managers who target energy efficiency measures at customers' facilities.
- Training and development opportunities on energy conservation for businesses and their employees.

For more information on Dark Sky Awareness http://www.darkskiesawareness.org/

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The Ghost Hunt's 109 targets– August 23/09 credit Astronomy.com Stephen James O'Meara.

Editor Note: *As a subscribed member of Astronomy Magazine I get access to additional information and such. I saw this challenge and thought it would be fun to get together and do "gorilla observing" with a purpose. What do you think?*

Each spring, amateur astronomers around the world challenge themselves by competing in the Messier Marathon — a visual feat in which observers use their telescopes to view all 109 celestial objects cataloged by French comet-hunter Charles Messier in a single night. This dusk-to-dawn romp has been a popular annual event since the 1960s. The search is fun and gratifying, and it helps observers hone their hunting skills.

Why not double the fun by hosting a similar challenge in the autumn? I have created a list of 109 deep-sky objects that you can hunt down in a single night on or around the New Moon closest to Halloween. In deference to the time of year, and considering that many deep-sky objects appear as pale specters of fuzzy light, I decided to call this October treat the Ghost Hunt.

Like the Messier Marathon, the Ghost Hunt is intended to be a fun and challenging activity that lasts from dusk to dawn. But there's one big difference: What you'll search for in the Ghost Hunt are not just Messier objects but 109 targets carefully selected from several deep-sky object lists.

The Ghost Hunt features 25 open star clusters, 27 galaxies, 16 emission nebulae, four reflection nebulae, 19 planetary nebulae, 14 globular star clusters, three supernova remnants (including two segments of the Veil Nebula), and one dark nebula. While nearly 70 percent of the objects in the Ghost Hunt are not Messier objects, they should be no more challenging to see. The PDF file you can download at the bottom of this page lists their locations, types, magnitudes, and apparent sizes.

In 2009, the New Moon falls on October 18, a Sunday. So that weekend would be the best time to hold a Ghost Hunt. The weekend beginning Friday, October 23 is also good because the Moon is still a waxing crescent that sets around 10 P.M. local time. It shouldn't affect your view of the objects on the list.

As your guests admire the Ghost Hunt's sights, explain to them how, owing to the vastness of space and the limited speed of light, we can travel back in time by simply looking up at the night sky. When it comes to astronomy, the past is very much alive. And it will remain so far into the future.

Editor: *Take the Ghost Hunt Challenge by clicking on the pdf and printing it. First one finished gets Bragging Rights and their name in the next newsletter. Click here to start* http://www.astronomy.com/asy/objects/pdf/gh1009.pdf

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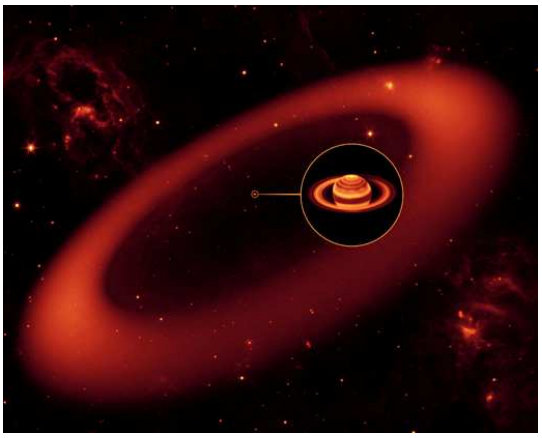
Spitzer Discovers Saturn's Largest Ring– October 7/09 credit Science@NASA

NASA's Spitzer Space Telescope has discovered an enormous and previously

unknown infrared ring around Saturn.

"This is one supersized ring," says Anne Verbiscer, an astronomer at the University of Virginia, Charlottesville. "If you could see the ring in the night sky, it would span the width of two full Moons."

Verbiscer is co-author of a paper about the discovery to be published online tomorrow by the journal Nature. The other authors are Douglas Hamilton of the University of Maryland and Michael Skrutskie of the University of Virginia.



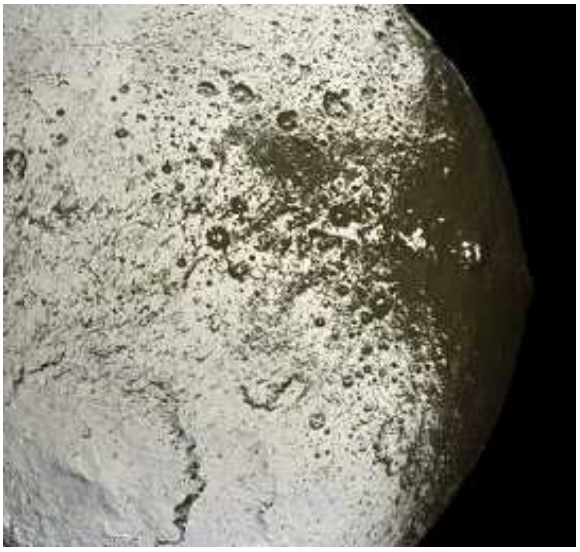
Left: An artist's concept of the newly-discovered infrared ring around Saturn.

The new belt lies at the far reaches of the Saturnian system, with an orbit tilted 27 degrees from the main ring plane. The bulk of its material starts about six million kilometers (3.7 million miles) away from the planet and extends outward roughly another 12 million kilometers (7.4 million miles). It would take about one billion Earths stacked together to fill the voluminous ring. One of Saturn's farthest moons, Phoebe, circles within the newfound ring, and is likely the source of its material.

The ring is tenuous, consisting of widely-dispersed particles of ice and dust. Spitzer's infrared eyes were able to spot the glow of the cool dust, which has a temperature of only about 80 Kelvin (minus 316 degrees Fahrenheit).

The discovery may help solve an age-old riddle of one of Saturn's moons. Iapetus has a strange appearance — one side is bright and the other is really dark, in a pattern that resembles the yin-yang symbol. The astronomer Giovanni Cassini first spotted the moon in 1671, and years later figured out it has a dark side, now named Cassini Regio in his honor. Saturn's supersized ring could explain how Cassini Regio came to be so dark. The ring is circling in the same direction as Phoebe, while Iapetus, the other rings and most of Saturn's moons are all going the opposite way. According to the scientists, some of the dark and dusty material from the outer ring moves inward toward Iapetus, slamming the icy moon like bugs on a windshield.

"Astronomers have long suspected that there is a connection between Saturn's outer moon Phoebe and the dark material on Iapetus," said Hamilton. "This new ring provides [the missing link]."



Right: Saturn's moon Iapetus. One side of the moon is darkened as the moon plows through the dust of Saturn's newly-discovered infrared ring.

Verbiscer and colleagues used Spitzer's longer-wavelength infrared camera, called the multiband imaging photometer, to scan through a patch of sky far from Saturn and a bit inside Phoebe's orbit. The astronomers had a hunch that Phoebe might be circling around in a belt of dust and, sure enough, when the

scientists took a first look at their Spitzer data, a band of dust jumped out.

The ring would be difficult to see with visible-light telescopes. The relatively small numbers of particles in the ring wouldn't reflect much visible light, especially out at Saturn where sunlight is weak. "The particles are so far apart that if you were to stand in the ring, you wouldn't even know it," said Verbiscer. "By focusing on the glow of the ring's cool dust, Spitzer made it easy to find."

For additional images relating to the ring discovery and more information about Spitzer, visit http://www.spitzer.caltech.edu.

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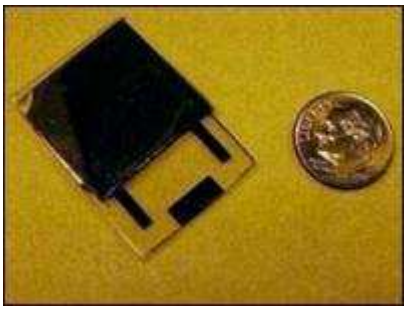
Two Words – Nuclear Batteries– Oct 7/09 credit By MU News Bureau

COLUMBIA, Mo. Batteries can power anything from small sensors to large systems. While scientists are finding ways to make them smaller but even more powerful, problems can arise when these batteries are much larger and heavier than the devices themselves. University of Missouri researchers are developing a nuclear energy source that is smaller, lighter and more efficient.

To provide enough power, we need certain methods with high energy density, said Jae Kwon, assistant professor of electrical and computer engineering at MU. The radioisotope battery can provide power density that is six orders of magnitude higher than chemical batteries.



Kwon and his research team have been working on building a small nuclear battery, currently the size and thickness of a penny, intended to power various micro/nanoelectromechanical systems (M/NEMS). Although nuclear batteries can pose concerns, Kwon said they are safe.

People hear the word nuclear and think of something very dangerous, he said. However, nuclear power sources have already been safely powering a variety of devices, such as pace-makers, space satellites and underwater systems.

His innovation is not only in the batterys size, but also in its semiconductor. Kwons battery uses a liquid semiconductor rather than a solid semiconductor.

The critical part of using a radioactive battery is that when you harvest the energy, part of the radiation energy can damage the lattice structure of the solid semiconductor, Kwon said. By using a liquid semiconductor, we believe we can minimize that problem.

Kwon has been collaborating with J. David Robertson, chemistry professor and associate director of the MU Research Reactor, and is working to build and test the battery at the facility. In the future, they hope to increase the batterys power, shrink its size and try with various other materials. Kwon said that the battery could be thinner than the thickness of human hair. Theyve also applied for a provisional patent.

Kwons research has been published in the Journal of Applied Physics Letters and Journal of Radioanalytical and Nuclear Chemistry. In addition, last June, he received an outstanding paper award for his research on nuclear batteries at the IEEE International Conference on Solid-State Sensors, Actuators and Microsystems in Denver (Transducers 2009).

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Buy and Sell

Here's your chance to clean out the closet and find a home for your slightly used treasures. Post your buy and sell items by emailing the Editor with your details.

Newtonian for Sale

Good permanent Newtonian scope (not portable) with 13 1/2 inch mirror, 4" Steel Alt Azimuth mount with concrete counter balance. Includes various eyepieces. More info contact John MacArthur at jandlmac@shaw.ca

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Ask an Expert

Have you been thumbing through the Astronomy or Sky and Telescope magazine and have some questions on the latest and greatest in astronomy gear? Or maybe you're narrowing down your search for just the right telescope and want to know the difference between Dobsonians, Schmidt-Cassegrains, Reflector and Refractors. Well wonder no more, email Brian Robilliard our resident expert to get the "inside scoop" on what's hot or not in astronomy gear.

Are you seeing double or unable to focus? Chances are you need to collimate your scope. Are you looking for a good eyepiece? Why do you need to know the focal length of your telescope's mirror and how do you determine the focal length? For answers to these and other telescope questions email Ed Maxfield our expert on telescope tips, hints and suggestions.

Are you new to astronomy? Want to know the how to find objects in the sky? Or just wondering what that bright object in the evening sky is? Well wonder no more; email Bryon Thompson our Public Outreach Officer and master of Astronomy 101 basics.

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Kids Korner

For the younger astronomers. We want your input on what you would like to see happening at the club. Tell us a bit about yourself and why you love astronomy. Email the Editor with your submissions. For the older folks, if you have any ideas that might spark the interest of a young upcoming astronomer, please send your submissions to the editor.

Put Your Video in Space! Courtesy of NASA

Submit your video answering "**why you think space exploration is important"** and it will be launched on Ares I-X!!

What you need:
Space exploration is important because…..
In 60 seconds or less, record a video using the above statement, telling everyone what you think about space exploration. You submission may be included on NASA's next launch.

Go to the site to upload your video
http://www.nasa.gov/externalflash/myexploration/index2.html

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The Sky This Month

By Bryon Thompson

Observing Site: **Duncan, 48.783°N, 123.700°W**

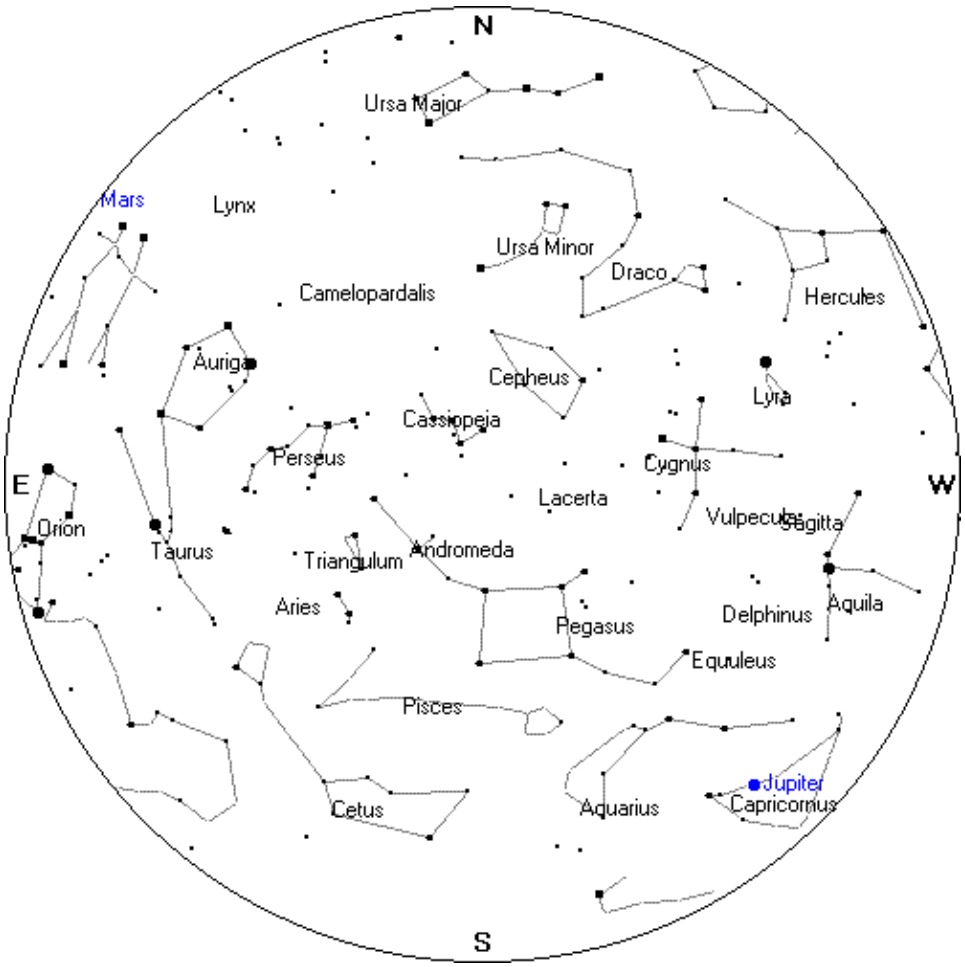
The Lcross lunar impact hype had us all awaiting a "debris plum" emerging from a lunar crater on the southern limb. All you needed was a medium sized backyard telescope. Even thought NASA deemed the event a success, these "big boys" didn't pick up a plume; Plumeless, Not a sausage, Bugger all!

Upon trying to write this article between school work, reports, homework, practice and losing the first draft, the days just flew by and I realized all of a sudden its near month's end and almost all the good stuff has come and gone. My apologies! I guess I turned up plumeless too! ….Is that a real word?

So instead of writing about the night sky this month, I thought I would challenge the members who came up with the possible "gorrilla oberving" sites and "star party" sites to get out and take the Ghost Hunt Challenge as described in the recent article. So click the link and lets go!
http://www.astronomy.com/asy/objects/pdf/gh1009.pdf
First one finished gets Bragging Rights and their name in the next newsletter.

Till next month, remember, astronomy is looking up.

Sky Chart —Here's your **mid-October** midnight sky chart. In order to use the sky chart properly remember the centre of the chart is the sky directly above your head (or the Zenith). Turn the chart so that the direction you are facing is at the bottom of the chart (or pointed toward your toes). The star field directly in front of you will be between the bottom of the chart and the centre.



Sky Chart Courtesy of Heavens-Above

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