

The Focal Point

The Atlanta Astronomy Club
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Editor: Kat Sarbell

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September General Membership Meeting

By Keith “Kosmic Kow” Burns

The next General meeting of the Atlanta Astronomy Club will be on September 16th at 8 P.M. at Emory University in White Hall, room 207. Directions to White Hall are on page 7. We will have refreshments in the hallway just outside of the room before the meeting. A small donation in the kitty box is requested by not required.

The meetings consist of two parts. Part one consists of a short business meeting. This includes any announcements of meetings, up coming events, and things of general interest. Part two is a talk given by our featured speaker of the night. Afterward we adjourned the meeting and head off to a local eating establishment for supper, dessert, and/or just a drink.

This month Dr. Harold A. McAlister will present “Georgia State’s CHARA Array on Mt. Wilson.” Georgia State University’s Center for High Angular Resolution Astronomy operates a six-telescope optical/infrared interferometer array on Mt. Wilson, California. The CHARA Array has the longest baselines of any optical interferometer in the world, making it the most powerful facility of its kind. By the end of 2002, the Array had made the transition to an active science instrument, and the NSF awarded CHARA a new three-year grant to support scientific programs on 30 April 2003. This talk will provide an overview of the facility and a description of its commissioning science results.

Here is some information on our speaker. Harold A. McAlister was born and raised in Chattanooga, Tennessee. After graduating from the University of Tennessee at Chattanooga in 1971, he attended the University of Virginia and received MS and PhD degrees in astronomy in 1973 and 1975. Following a two-year appointment as a post-doctoral researcher at the Kitt Peak National Observatory in Tucson, Arizona, McAlister joined the



faculty of Georgia State University in 1977. His research in high resolution astronomical imaging has been continuously supported by the National Science Foundation since 1978 with additional grant support the Air Force Office of Scientific Research, the Naval Research Laboratory, the Space Telescope Science Institute as well as from private foundations. McAlister founded the Center for High Angular Resolution Astronomy (CHARA) at Georgia State in 1983, and CHARA has gone on to build the world’s most powerful optical interferometer telescope array. He is the author or co-author of some 150-research publications and has served on numerous review, advisory and over-sight panels for the NSF and NASA. In addition to teaching and directing CHARA, Dr. McAlister also serves as Director of the Mount Wilson Institute, a non-profit organization now housed at Georgia State, which manages the historic Mt. Wilson Observatory under an agreement with the Carnegie Institution of Washington. He lives in Decatur, Georgia with his wife Susan, a residential real estate appraiser. Their daughter Merritt is a second year law student at the University of Georgia.

Upcoming speakers and programs

For October, Angela Osterman, a graduate student from Georgia State University will talk about her research, what it is like to be a graduate student, and the various observatories around the world she has visited. See her web page <http://www.chara.gsu.edu/~osterman/>.

For November we are changing meeting dates and room location. The meeting will take place on November 11th instead at our usual time. The location is room 208 of the White Hall building. Since this is a special occasion, we will cut out the business meeting and just have the talk. The featured speaker is Simon Singh. He is an author, journalist and TV producer, specializing in science and mathematics. He is a science writer for the BBC. His newest book is titled, “Big Bang, The Origin of the Universe.” His lecture is titled, ‘BIG BANG the history of the universe in 60 minutes’. Simon’s talks are very historical and not at all technical. See his website at www.simonsingh.net for more information.

Dec. 3rd we are planning on having our Christmas banquet at Bradley

Continued on next page

Observatory on the Agnes Scott College campus. Note that this is the first Saturday night in December. Final details are still being worked out. Stay tuned for more.

Feb. 10th, 2006 we will have Adam Block of Kitt Peak come speak. Note that this is the 2nd Friday of the month and not the third Friday. Adam is designing a brand new power point presentation just for this meeting. It will include many wonderful space images and an abundance of information on Kitt Peak. Plus Adam will talk about exactly what he does out there as his job.

AAC August Meeting Minutes

by Art Russell

General Meeting - August 19, 2005

Approximately 40 members and guests attended the August General Membership Meeting of the AAC held at Emory University's White Hall. Phil Sacco, President, opened the meeting at 8:05 PM with a quiz asking the name of Ariadne's sister (hint: Google "Phaedre"). Phil then asked the membership what one thing they would change about the AAC. AAC member Alex Langoussis, remarked that the club should have a Dark-Sky Site on property it owned. Phil noted that the club's 5-Year Plan, which was discussed by the Board of Directors last year, addressed club ownership of a Dark-Sky Site, as well as other issues such as a robotically controlled imaging observatory. He further noted that the 5-Year Plan would be discussed at the next meeting of the Board of Directors on 28 August.

Peach State Star Gaze (PSSG) Chairman Peter Macumber announced that final preparations and planning were being completed. The event is scheduled for November 2-6 and will feature a wide range of speakers. Peter also noted that dates for the PSSG coincided with the Taurid meteor showers and the 2005 opposition of Mars. He also expects that registration packets for the PSSG will be mailed during the week of 21-27 August.

AAC member and Coordinator for the Association of Lunar and Planetary Observers (ALPO, see <http://www.lpl.arizona.edu/alpo/>) Richard Schmude, reported on results from last week's Astronomical League (AL) Convention (see <http://www.astroleague.org/>). Significantly, the AL approved new Observing Programs for: Open Clusters, Planetary Nebulae, Advanced Lunar features, and Astronomy Outreach. He also noted that the AL will award a plaque to Master Observers who request one for presentation at the annual AL convention. Richard also noted that ALPO's annual meeting for 2006 would be held at Fernbank Science Center in late July 2006.

AAC Program Chairman Keith Burns discussed programs and speakers for the Fall 2005 season. As the club's AL correspondent (ALCOR) he also discussed AL Observing Programs. In addition, he also discussed the club's Mentoring Program and asked for assistance in helping to maintain its current momentum.

AAC member Stephen Bieger discussed ongoing activities at the Charlie Elliot Wildlife Management Area (CEWMA) Chapter of the AAC. The next meeting of the CEWMA Chapter will be 10 September and will feature observing afterwards, weather permitting. Stephen then discussed "What's Up" for observers during the current month.

AAC member Alex Langoussis introduced the evening's featured speaker, Tim Puckett. Tim is a former AAC member who has forged an amateur supernova observing alliance that now rivals professional research programs. His presentation reviewed his start in astronomy, and his evolution into one of the most productive producers of supernova discoveries with a team of associates spanning countries and continents.

Phil adjourned the meeting at approximately 9:30PM whereupon the membership moved to the after-meeting festivities held at Athens's Pizza.

Charlie Elliott August Meeting Minutes

by Clevis Jones, CEC Recording Secretary

Saturday August 6, 2005

ATTENDANCE: Twenty guests and members attended the meeting.

BUSINESS: Larry Owens gave an update on the Byers mount project (details on the CEC web site) and covered some changes to the CEC Web-site. Several members volunteered work they have done that can be posted on the CEC Web-site for the benefit to the chapter.

OBSERVING REPORT: Steve Bieger presented "What's Up Tonight", a grand tour of various objects in Ophiuchus, Scorpio, and Sagittarius.

CURRENT EVENTS REPORT: Clevis Jones covered STS-114 activities, Sunspot 792, the discovery of a candidate for a 10th planet in our solar system – 2003 UB313, and many other happenings in the sky, along with the status of the Mars Rovers – Spirit and Opportunity, and an update on some Mars images taken by Larry Owens.

FEATURED PROGRAM: Dr. Richard W. Schmude, Professor, Gordon College Division of Natural Sciences and Nursing, Barnesville, GA, and Executive Director of the Association of Lunar and Planetary Observers (A.L.P.O.) presented an informative "halftime show" of the close approach, or apparition, of Mars that will occur October 30, 2005 UTC – the opposition occurring in November. Dr. Schmude's presented information about features on Mars, how to best photograph them, how to determine the time of year on Mars, and which filters show the various features the best. He encouraged further imaging and drawings using telescopes of at least 8 inches of aperture. His suggestion was to concentrate drawing the detail of one area of Mars rather than the whole globe.

OBSERVING SESSION: None – solid overcast.

Charlie Elliot Chapter Future Meetings

by Clevis Jones, CEC Recording Secretary

Place: CE Visitor's Center presentation room. Enter through the left side door nearest the back of the building.

Observing. Everyone is invited to the Charlie Elliott observing field after the meeting for an evening of viewing and imaging through member and club telescopes.

MEETING DATES AND PROGRAMS:

September 10, 2005 5:00 – 7:30 PM

Astronomy Current Events – Clevis Jones

What's Up Tonight – Steve Bieger

Lecture: "Why Do We Tolerate Bad Lighting" - Marc Sandberg, the AAC's Light Trespass Officer, will give a short presentation to underscore what can be done about light pollution and why we tolerate it.

Feature Presentation: "Deep Sky Imaging with Digital Cameras", Larry Owens presents a program of "Deep sky" imaging (time exposure photography of the night sky). In the recent past this has required very expensive astronomical CCD cameras or wrestling with the difficulties of using a film camera. With today's advancements in digital photography, the common digital land camera is now very suitable for most types of deep sky imaging.

October 1, 2005 5:00 – 7:30 PM

Astronomy Current Events – Clevis Jones

What's Up Tonight – Steve Bieger

Feature Presentation: "Basic Telescopes", by Steve Bieger.

For updates, please check the CEC website for the most current meeting information - <http://www.atlantaastronomy.org/CEWMA/>

“Many Hands make Light Work”

(quote taken from Chrissy Mondell, PSSG 1998)

by your Prez

First a note of Welcome to all our new members~! Just because you are new to the club, you may feel you have little to contribute, but you couldn't be further from the mark on this. As a new member, your interest and ideas are VITAL to our club. It remains for the AAC to support you in your developing interest in astronomy, and your feedback and involvement are essential.

A club is what its members make of it. That is the simple fact. What each of us carries away from our club is directly related to what energy we put into the club. We have a good number of regular workhorses in the club, and I can tell you they carry a lot of pleasure and satisfaction away from our events.

In my article last month, I pointed out some of the ideas I had for furthering participation by our club members. We have a committee working on bringing the essentials to our Barber Observatory to make it possible to learn and execute Lunar and Planetary observing from our site with Club equipment. I understand things are coming along well in this project and I hope you will consider taking your imaging interest to fruition.

The Mentoring program has been filling up with participants, and Keith Burns, our ALCOR, has put out a call for help. Any member having completed an AL Observing Club can be instrumental in helping this budding program for the club. You would have as much or little contact with people interested in pursuing the observing club of your choice...your role would be to help them with any questions they may have, and give them pointers on how to accomplish the Observing Club goals. Other than that, your involvement is completely up to you. This is a great way to meet and help 'bring up' our new avid observing amateurs. Please contact Keith Burns or myself if you are interested in helping with this program, or are interested in pursuing an Observing Club.

Having our members classified for individual interests would help facilitate communication and camaraderie within the club. If you haven't communicated your special interests to the club, please do. To date, I know of no one that has had their special interest registered.

After my request for volunteers last month, I had one new member step to the plate and offer to chair the Blue Ridge Initiative. Thank you Chuck Swann! This committee is charged with finding a liaison to coordinate our efforts with the Boy Scouts, and take steps to assure we continue to fulfill our obligation with the Boy Scouts for their summer astronomy program. Anyone so interested or that actively observes from the Caulder Observing site at the Boy Scout Camp is encouraged to join in with this committee. Please contact Charles Swann at 770-720-0122. Your participation is essential, or we stand in jeopardy of losing the use of this site.

If you have any ideas that you feel may make our club more enjoyable, please don't keep them to yourself. Feel free to approach me with any suggestions you may have and let's see what we can do about it~ The easiest way for you to get a message to the club is to call the club's Hotline at 770-621-2661. Leave your name and number with you message and I will get back with you.

Lastly, please note there is a schedule change for the November General Membership meeting. It will be hosted on the SECOND Friday of the month, rather than the usual Third so we may take advantage of a special speaker being brought in by Emory. Be looking for more info posted in the schedule as to time and place.

Remember...you get out of the club what you put into it...Make your efforts count, get involved!

Clear Skies~ Philip Sacco

The 12th Annual Peach State Star Gaze PSSG'05

The PSSG Committee has been meeting and very soon registration will be opened for the 2005 event.

We are offering a new pricing structure to try and save you some money.

Make your plans now to be at the November 2 - 6 event, to be held once again at the dark skies of Whitewater Express.

Visit the website and check for regular announcements at <http://AtlantaAstronomy.Org/PSSG05>

We are finalizing the plans and finalizing the speakers. So far we have:

Richard DeLuca

Roger Venable

Rich Jakiel

Richard Schmude

We will also have an evening of music under the stars with Jonn Serrie.

It is interesting to note that the PSSG will be held very close, within a couple of days, of Mars Opposition. This will mean that Mars will be well placed for observing all night long.

This years PSSG will also be at the time of the Taurids. The meteors are debris from periodic comet 2P/Encke. They are the slowest of any major showers, encountering Earth at only 28 kilometers per second. The Taurids are noted for many brightly colored meteors. The dominant color is yellow, many orange, green, red, and blue fireballs have been recorded. Refer to the International Meteor Organization website.

Peter and Joanne

Peach State Star Gaze Committee Chairs November 2nd - 6th, 2005

Mars Image by Dan Llewellyn



Galactic Survey Reveals a New Look for the Milky Way

University of Wisconsin-Madison News Release 8/16/05

MADISON - With the help of NASA's Spitzer Space Telescope, astronomers have conducted the most comprehensive structural analysis of our galaxy and have found tantalizing new evidence that the Milky Way is much different from your ordinary spiral galaxy.

The survey using the orbiting infrared telescope provides the fine details of a long central bar feature that distinguishes the Milky Way from more pedestrian spiral galaxies.

"This is the best evidence ever for this long central bar in our galaxy," says Ed Churchwell, a University of Wisconsin-Madison professor of astronomy and a senior author of a paper describing the new work in an upcoming edition of *Astrophysical Journal Letters*, a leading astronomy journal.

Using the orbiting infrared telescope, the group of astronomers surveyed some 30 million stars in the plane of the galaxy in an effort to build a detailed portrait of the inner regions of the Milky Way. The task, according to Churchwell, is like trying to describe the boundaries of a forest from a vantage point deep within the woods: "This is hard to do from within the galaxy."

Spitzer's capabilities, however, helped the astronomers cut through obscuring clouds of interstellar dust to gather infrared starlight from tens of millions of stars at the center of the galaxy. The new survey gives the most detailed picture to date of the inner regions of the Milky Way.

"We're observing at wavelengths where the galaxy is more transparent, and we're bringing tens of millions of objects into the equation," says Robert Benjamin, the lead author of the new study and a professor of physics at the University of Wisconsin-Whitewater.

The possibility that the Milky Way Galaxy has a long stellar bar through its center has long been considered by astronomers, and such phenomena are not unheard of in galactic taxonomy. They are clearly evident in other galaxies, and it is a structural characteristic that adds definition beyond the swirling arms of typical spiral galaxies.

The new study provides the best estimates for the size and orientation of the bar, which are far different from previous estimates.

It shows a bar, consisting of relatively old and red stars, spanning the center of the galaxy roughly 27,000 light years in length - 7,000 light years longer than previously believed. It also shows that the bar is oriented at about a 45-degree angle relative to a line joining the sun and the center of the galaxy.

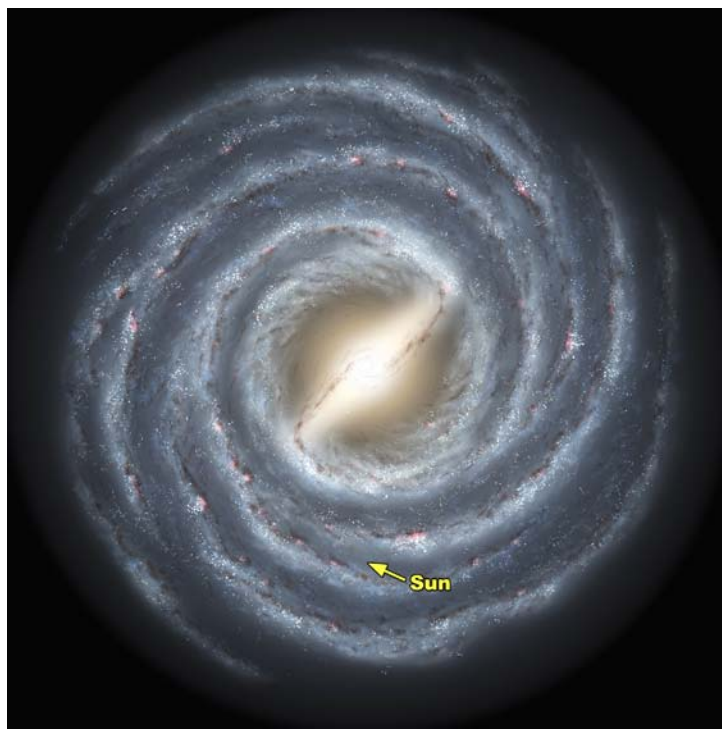
Previously, astronomers debated whether a presumed central feature of the galaxy would be a bar structure or a central ellipse - or both. The new research, the Wisconsin astronomers say, clearly shows a bar-like structure.

"To date, this is the best evidence for a long bar in our galaxy," Benjamin asserts. "It's hard to argue with this data."

The Spitzer Space Telescope was lofted into orbit in August of 2003. It consists of a telescope and three science instruments, including the Infrared Array Camera, the primary instrument used for the new survey, known as GLIMPSE for Galactic Legacy Mid-Plane Survey Extraordinaire.

NASA's Jet Propulsion Laboratory (JPL), Pasadena, Calif., manages the Spitzer Space Telescope mission for NASA's Science Mission Directorate, Washington, D.C. Science operations are conducted at the Spitzer Science Center in Pasadena. JPL is a division of the California Institute of Technology.

- Terry Devitt, (608) 262-8282, trdevitt@wisc.edu



Above: The Milky Way, it turns out, is no ordinary spiral galaxy. According to a massive new survey of stars at the heart of the galaxy by Wisconsin astronomers, including professor of astronomy Edward Churchwell and professor of physics Robert Benjamin, the Milky Way has a definitive bar feature -- some 27,000 light years in length -- that distinguishes it from pedestrian spiral galaxies, as shown in this artist's rendering. The survey, conducted using NASA's Spitzer Space Telescope, sampled light from an estimated 30 million stars in the plane of the galaxy in an effort to build a detailed portrait of the inner regions of the Milky Way. Illustration: NASA/JPL-Caltech/R. Hurt (SSC/Caltech)

The Telescope & Instrument Workshop (T&IW formerly The ATM Group)

by Sharon Carruthers

Why did we call this the T&IW instead of the standard ATM (Amateur Telescope Makers)? 'Cause we thought ATM made it sound like all we did was make telescopes, which might keep people away (O.K., maybe that was dumb). But we are dedicated to ALL the NON-OBSERVING needs of our members -- problems and projects with telescopes, binoculars, mounts, motors, optics, equipment and accessories. We are the place to bring new scope that you just can't get to work!!

We don't offer formal classes -- it is all driven by networking and mentoring. Show up & we will find someone to help you. We will offer specific topics (i.e. collimation, cleaning optics, mirror grinding & testing) at a meeting if our attendees express an interest. (The previous ATM group started on a 16" Dob for the Club -- we would like to see work on that moving forward again.)

Meetings will be on Saturday morning at 11:00 A.M. and upcoming meetings will be on Sept 17, and Oct 15.

Location: Bradford Map, Globe & Telescopes, 300 Hammond Dr, ATLANTA 30328 (Sandy Springs)

For More info, contact: Dan Llewellyn at zoser@mindspring.com or 404-633-7562 (W); or Sharon Carruthers at Treasurer@AtlantaAstronomy.org or 770-941-4640 (H); 404-843-9610 (W)

First Triple Asteroid System Observed

University of California-Berkeley News Release

Posted: August 13, 2005

One of the thousands of asteroids orbiting the sun has been found to have a mini planetary system of its own.

University of California, Berkeley, assistant research astronomer Franck Marchis and his colleagues at the Observatoire de Paris have discovered the first triple asteroid system - two small asteroids orbiting a larger one known since 1866 as 87 Sylvia.

Because 87 Sylvia was named after Rhea Sylvia, the mythical mother of the founders of Rome, Marchis proposed naming the twin moons after those founders: Romulus and Remus. The International Astronomical Union (IAU) approved the names, to be announced in its Aug. 11 circular.

Marchis and his colleagues will report their discovery in the Aug. 11 issue of the journal *Nature* simultaneously with an announcement that day at the Asteroid Comet Meteor conference in Armação dos Búzios, in the Brazilian state of Rio de Janeiro.

The asteroid 87 Sylvia is one of the largest known from the asteroid main belt, which is located between the orbits of Mars and Jupiter. Shaped like a lumpy potato, Sylvia is about 280 kilometers (175 miles) in diameter and is located in the Cybele outer part of the belt, about 3.5 astronomical units (AU) from the sun. An AU is 93 million miles, the average distance between the sun and Earth.

Four years ago, Sylvia was discovered to have a moon, making it one of some 60 known binary asteroids in various asteroid populations of the solar system. Seventeen of these binary systems are in the main asteroid belt and have been imaged directly either by adaptive optics systems on large, ground-based telescopes or by the Hubble Space Telescope.

Now, a second moon has been seen around Sylvia, making it a triple asteroid system. Sylvia's newly discovered moons orbit in nearly circular orbits in the same plane and direction (prograde) as the moon orbits the Earth. The closest moonlet, orbiting about 710 km (450 miles) from Sylvia, is Remus, a body only 7 km (4.4 miles) across and circling Sylvia every 33 hours. The second, Romulus, orbits at about 1360 km (860 miles), measures about 18 km (11.3 miles) across, and orbits in 87.6 hours. The asteroid Sylvia spins at a rapid rate, once every 5 hours and 11 minutes.

"People have been looking for multiple asteroid systems for a long time, because binary asteroid systems in the main belt seem to be common and formation scenarios, such as a collision between two asteroids followed by disruption and re-accretion, suggest that fragments should be orbiting bigger asteroids," Marchis said. "I couldn't believe we found one."

From two months' of observations of the moonlets' orbits, Marchis and his Paris colleagues were able to precisely calculate the mass and density of Sylvia, which shows it to be a "rubble-pile" asteroid, Marchis said. These asteroids are loose aggregations of rock presumably created when one asteroid smacked into another, disrupting one or both of them. A new asteroid formed later by accretion of large fragments from the disruption. The moonlets probably are debris left over from the collision that were gravitationally captured by the newly formed asteroid and which eventually settled into orbits around it.

"That's why most main-belt asteroids with companions have a rubble-pile structure," he said. "Because of the scenarios of their formation, we expect to see more multiple asteroid systems like this."

The density, 1.2 grams per cubic centimeter, is 20 percent higher than the density of water, which suggests it is composed of water, ice and rubble from a primordial asteroid, probably a hydrated carbonaceous chondrite, based on previous spectroscopic studies of the asteroid.

"It could be up to 60 percent empty space," said astronomer Daniel Hestroffer, one of three coauthors from the Institut de Mecanique Celeste et Calculs d'Éphemerides at the Observatoire de Paris.

The discovery was made with one of the European Southern Observatory's 8-meter telescopes (Yepun) of the Very Large Telescope at Cerro Paranal, using the telescope's infrared camera and the high angular resolution provided by the adaptive optics system (NACO). Via the observatory's promising "service observing mode," Marchis and his colleagues were able to obtain sky images of many asteroids over a six-month period without actually having to travel to Chile. DVD data of the observations were sent regularly via mail to Berkeley.

Marchis had the discovery sitting on his shelf for months, since November 2004, because he waited for the completion of the project before starting to process the data and before sending them to colleague Pascal Descamps of the Observatoire de Paris. Just as Marchis was set to go on vacation in March 2005, Descamps sent him a brief note entitled "87 Sylvia est triple?" pointing out that he could see two moonlets around several images of Sylvia. The entire team then focused quickly on analysis of the data, wrote a paper, submitted an abstract to the August meeting in Rio de Janeiro and submitted a naming proposal to the IAU.

Marchis and his colleagues hope to use the adaptive optics of the Keck and the Gemini telescopes to obtain better images of the triple-asteroid system in order to pin down the precise orbits, verify Sylvia's formation scenario and chart the system's evolution. Already they see precession of the moon's orbits resulting from the irregular shape of Sylvia.

The work was partially supported by the National Science Foundation and the Technology Center for Adaptive Optics and by the Chretien International Research Grant of the American Astronomical Society.

The fourth author with Marchis, Descamps and Hestroffer was Jérôme Berthier, also of the Institut de Mecanique Celeste et Calculs d'Éphemerides at the Observatoire de Paris. The moon now designated Romulus was discovered in 2001 by M. E. Brown and J. L. Margot using the Keck II telescope atop Mauna Kea in Hawaii.



An artist's concept shows the triple asteroid system.

AAC Mailing Address Change

by Sharon Carruthers

The Atlanta Astronomy Club has changed its mailing address. Our new address is: The Atlanta Astronomy Club, Inc., P.O. Box 76155, Atlanta, GA 30358-1155.

NASA's Swift Satellite Finds Newborn Black Holes

NASA News Release - August 18, 2005

Scientists using NASA's Swift satellite say they have found newborn black holes, just seconds old, in a confused state of existence. The holes are consuming material falling into them while somehow propelling other material away at great speeds.

These black holes are born in massive star explosions. An initial blast obliterates the star, yet the chaotic black hole activity appears to re-energize the explosion several times in just a few minutes. This is a dramatically different view of star death, one that entails multiple explosive outbursts and not just a single bang, as previously thought.

"Stars are exploding two, three and sometimes four times in the first minutes following the initial explosion," said Prof. David Burrows of Penn State, University Park, Pa. "First comes a blast of gamma rays followed by intense pulses of X-rays. The energies involved are much greater than anyone expected," he added.

Scientists have seen this phenomenon in nearly half of the longer gamma-ray bursts detected by Swift. These gamma-ray bursts are the most powerful explosions known. They are forerunners of a massive star explosion called a hypernova, which is bigger than a supernova. Using Swift, scientists are finally able to see gamma-ray bursts within minutes after the trigger, instead of hours or days, and are privy to newborn black hole activity.

Until this latest Swift discovery, scientists assumed a simple scenario of a single explosion followed by a graceful afterglow of the dying embers. The new scenario of a blast followed by a series of powerful "hiccups" is particularly evident in a gamma-ray burst from May 2, 2005, named GRB 050502B. This burst lasted 17 seconds during the early morning hours in the constellation Leo. About 500 seconds later, Swift detected a spike in X-ray light about 100 times brighter than anything seen before.

Previously there had been hints of an "X-ray bump" between the burst and afterglow in previous gamma-ray bursts, coming a minute or so after the burst. Swift has seen more than one dozen clear cases of multiple explosions. There are several theories to describe this newly discovered phenomenon and most point to the presence of a newborn black hole.

"The newly formed black hole immediately gets to work," said Prof. Peter Meszaros of Penn State, head of the Swift theory team. "We aren't clear on the details yet, but it appears to be messy. Matter is falling into the black hole, which releases a great amount of energy. Other matter gets blasted away from the black hole and flies out into the interstellar medium. This is by no means a smooth operation," he added.

Another theory is the jet of material shooting away from the dead star starts to fall back onto itself, creating shockwaves in the jet core that ram together blobs of gas and produce X-ray light.

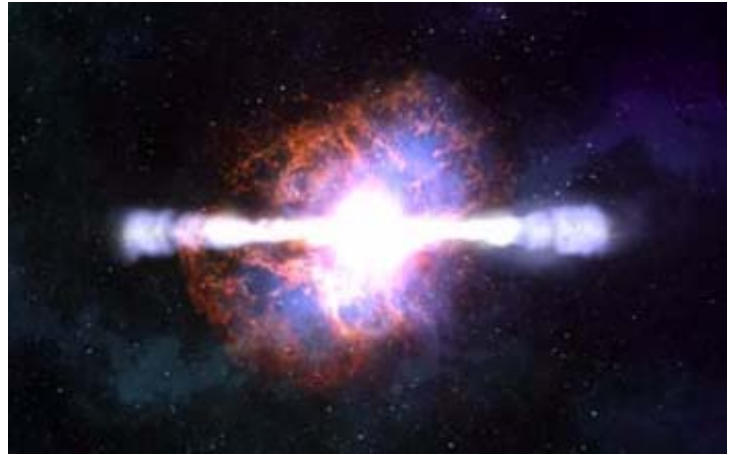
"None of this was realized before simply because we couldn't get to the scene of the explosion fast enough," said Dr. Neil Gehrels of NASA Goddard Space Flight Center, Greenbelt, Md., Swift principal investigator. "Swift has the unique ability to detect bursts and turn its X-ray and ultraviolet-optical telescopes to the explosion's embers within minutes. As such, Swift is detecting new burst details that might rewrite theory," Gehrels said.

Swift carries three main instruments: the Burst Alert Telescope (BAT); X-ray Telescope (XRT); and the Ultraviolet/Optical Telescope (UVOT). Today's announcement is based largely on XRT data. The XRT was built at Penn State with partners at the Brera Astronomical Observatory in Italy and the University of Leicester in England.



Swift was launched in November 2004. It is a NASA mission in partnership with the Italian Space Agency and the Particle Physics and Astronomy Research Council, United Kingdom. Swift is managed by Goddard. Penn State controls science and flight operations from the Mission Operations Center in University Park, Pa. The spacecraft was built in collaboration with national laboratories, universities and international partners.

A paper discussing these findings appears online on Science Express and in the September 9 issue of Science. Burrows is lead author of the paper.



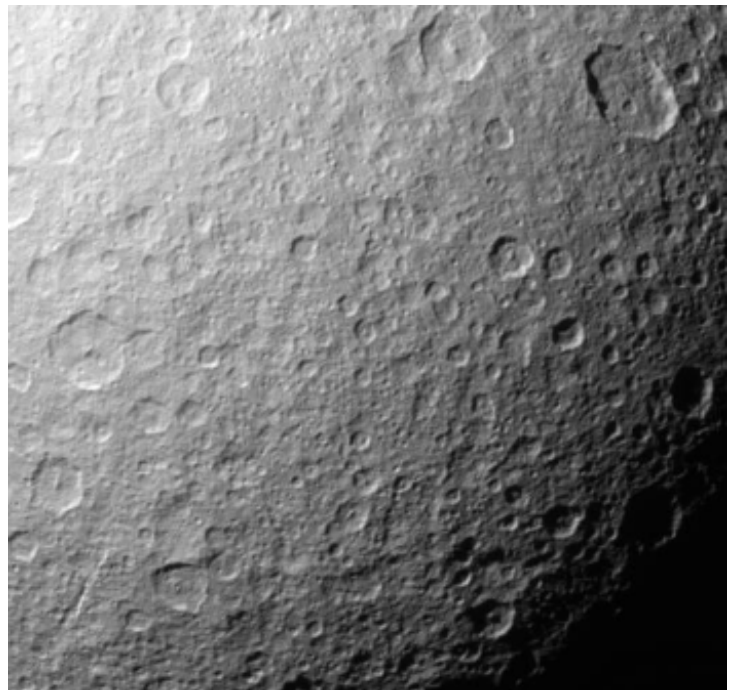
This artist's concept shows what happens when a massive star runs out of fuel. It no longer has the energy to support its mass. The core collapses and forms a black hole. Shockwaves bounce out and obliterate the outer shells of the star. Credit: NASA/GSFC/Dana Berry

Cassini Spies Moon Rhea

Cassini Photo Release - August 23, 2005

Like the rest of Rhea's surface, the southern polar region of this Saturn moon has been extensively re-worked by cratering over the eons. This close-up shows that most sizeable craters have smaller, younger impact sites within them. Near the left lies an intriguing gash.

Article continued on next page. Credit: NASA/JPL/Space Science Institute



The largest well-defined crater visible here is an oval-shaped impact toward the upper right. The crater is 115 by 91 km in size.

Cassini acquired this view during a distant flyby of Rhea (1,528 km).

The image was taken in visible light with the Cassini spacecraft narrow-angle camera at a distance of approximately 239,000 km from Rhea and at a Sun-Rhea-spacecraft, or phase, angle of 56 degrees. The image was obtained using a filter sensitive to wavelengths of infrared light centered at 930 nanometers. The image scale is about 1 km per pixel.

GASP (Georgia Astronomy in State Parks) Events

Here are the remaining GASP events scheduled for 2005:

October 8th - Florence
Marina State Park

November 19th - Unicoi
State Park.

For more information about these events, contact Joanne Cirincione at Starrynights@AtlantaAstronomy.org.



The GASP volunteers at FDR State Park on Labor Day weekend 2004 - From left to right: Joanne Cirincione, Keith Burns, Harold and Claudia Champ with Ginger, Peter Macumber, Sharon Carruthers, Tom Faber, Kat Sarbell, and Holly and John Ritger.

Directions to White Hall at Emory

Meeting Location Information:

Turn onto Dowman Drive from North Decatur Road at the five way intersection (across from Everybody's Pizza). White Hall is located on the right across from the new Science & Math building. Parking is available along Dowman Drive on both sides of the road. There is also a gated parking lot on the left behind the Admissions Building. After 6PM there is no fee to park there. For more detailed directions on how to get to Emory University, visit www.atlantaastronomy.org.

The **Atlanta Astronomy Club, Inc.**, the South's largest and oldest astronomical society, meets at **8:00 P.M.** on the third Friday of each month at Emory University's White Hall or occasionally at other locations or times. Membership is open to all. Membership fees are **\$30** for a family or single person membership. College Students membership fee is **\$15**. These fees are for a one year membership.

Magazine subscriptions to *Sky & Telescope* or *Astronomy* can be purchased through the club for a reduced rate. The fees are **\$33** for Sky & Telescope and **\$29** for Astronomy. Renewal forms will be sent to you by the magazines. Send the renewal form along with your check to the Atlanta Astronomy Club treasurer.

The Club address: Atlanta Astronomy Club, Inc., P.O. Box 76155, Atlanta, GA 30358-1155.

Atlanta Astronomy Club Hot Line: Timely information on the night sky and astronomy in the Atlanta area. Call **770-621-2661**.

AAC Web Page: <http://www.AtlantaAstronomy.Org>

Send suggestions, comments, or ideas about the website to webmaster@AtlantaAstronomy.org. Also send information on upcoming observing events, meetings, and other events to the webmaster.

AAC Contacts

President: Philip Sacco 404-296-6332
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Observing Chair: Daniel Herron observing@atlantaastronomy.org

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Recording Secretary: Art Russell
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Board: Chris Hetlage 770-242-6584 chrishet@comcast.net

Board: Larry Owens planetographer@comcast.com

Board: Ken Poshedly 678-516-1366 poshedly@bellsouth.net

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Elliott Observing Supervisor: Steve Bieger - Contact Info TBA

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Webmaster Charlie Elliott: Larry Owens
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Webmaster Atlanta Astronomy: Peter Macumber 770-941-4640
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Atlanta Astronomy Club Website

While this newsletter is the official information source for the Atlanta Astronomy Club, it is only up to date the day it is printed. So if you want more up to date information, go to our club's website. The website contains pictures, directions, membership applications, events updates (when available) and other information. <http://www.atlantaastronomy.org>

Calendar by Tom Faber (All times EDT unless noted)

September 1st, Thursday: Conjunction Venus-Jupiter.
September 2nd, Friday: Moon near Mercury.
September 3rd, Saturday: New Moon. GASP at FDR State Park. DSO at Woodruff BSC - Contact Daniel Herron.
September 5th, Monday: Venus near Spica.
September 6th, Tuesday: Grouping Moon, Venus, Jupiter, Spica.
September 9th, Friday: Saturn in M44 next several weeks. Bradley Observatory Open House, 8PM, Agnes Scott College, "Deep Impact: What did we learn about Comet Tempel 1?" Amy Lovell - Agnes Scott College.
September 10th, Saturday: CE Chapter Meeting & Observing.
September 11th, Sunday: Moon First Quarter.
September 16th, Friday: AAC Meeting at White Hall, Emory University.
September 17th, Saturday: Moon Full. Telescope & Instrument Workshop at 11AM - Contact Sharon Carruthers.
September 18th, Sunday: Mercury Superior Conjunction. AAC Board Meeting at Bradford Map, Globe & Telescopes, 5:30PM
September 22nd, Thursday: Equinox at 6:23PM.
September 24th, Saturday: New Member Orientation at Villa Rica - Contact Daniel Herron.
September 25th, Sunday: Moon Last Quarter.
September 28th, Wednesday: Moon near Saturn and M44.
October 1st, Saturday: DSO at Mentone, AL, - Contact Daniel Herron.
October 3rd, Monday: New Moon. Mercury, Jupiter near Spica.
October 6th, Thursday: Conjunction Mercury-Jupiter, Moon near Venus.
October 7th, Friday: Bradley Observatory Open House, 8PM, Agnes Scott College, "Art and Astronomy in Krakow, Prague, Venice and Florence," Chris De Pree and Donna Sadler - Agnes Scott Col.
October 8th, Saturday: GASP at Florence Marina State Park. Giacobinid Meteors.
October 10th, Monday: Moon First Quarter.
October 15th, Saturday: Telescope & Instrument Workshop at 11AM - Contact Sharon Carruthers.

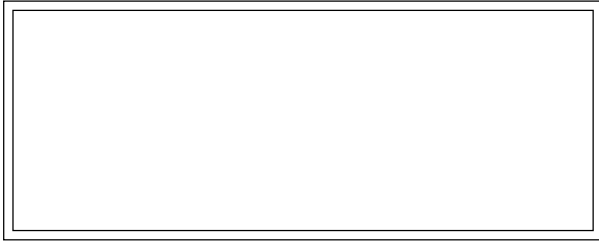
Atlanta Astronomy Club Listserve

Subscribe to the Atlanta Astronomy Club Mailing List: The name of the list is: AstroAtlanta. The address for messages is: AstroAtlanta@yahoogroups.com. To add a subscription, send a message to: AstroAtlanta-subscribe@yahoogroups.com. This list is owned by Lenny Abbey.

Focal Point Deadline and Info

Please send articles, pictures, and drawings in electronic format on anything astronomy related to [Kat Sarbell at focalpoint@atlantaastronomy.org](mailto:KatSarbell@focalpoint@atlantaastronomy.org). You can submit articles anytime up and including the deadline date. **The deadline for October is Thursday, September 22th at 4:00 PM ... Submissions will no longer be accepted after the deadline.**

FIRST CLASS



The Focal Point

Newsletter of The Atlanta Astronomy Club,

Inc.

FROM:

Kat Sarbell

2025 Peachtree Road, Apt.#408

Atlanta, GA 30309

We're here to help! Here's how to reach us:

Atlanta Astronomy Club

P.O. Box 76155

Atlanta, GA 30358-1155