

The Focal Point

The Atlanta Astronomy Club
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Editor: Tom Faber

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June General Meeting

by Keith "Kosmic Kow" Burns, AAC President

The next meeting of the Atlanta Astronomy Club will be held on June 20th. We have shifted the meeting schedule to follow more closely with the Lunar Calendar. Of course, this year the lunar calendar lines up with the third Friday schedule we use to follow. You won't notice a change until November. Even then it's only by a week. BTW: June 18th is Full Moon.

The meeting will take place in room 207 of White Hall on the Emory University Campus. Directions are on page 7 and on our website. There will be a new 5-minute segment on an Astronomical League observing club. Plus the rerun of last month's equipment plagued, "There's nothing to see." The shorten edition for obvious reasons. Finally our featured speaker for the June meeting is Club President Keith Burns.

Keith's talk is titled: "Mid South Star Gaze." Some of us recently went to the Mid South Star Gaze over in Mississippi. Yes, they have running water and electricity. Since this is summer time, I thought it a good idea to take everyone on a trip to a star party. Of course, you won't be there physically but with pictures you will. Prepare to take a trip. Bring plenty of suntan lotion and the sunglasses. It's a pretty cool place. The pictures speak for themselves but I must add colorful commentary to give you the fun trip treatment.

Speaker Biography

Keith Burns is from McHenry County Illinois. In 1979, Keith's father decided it was not fun to spend winters in Illinois anymore, so the family moved south to the much warmer climes of Marietta, Georgia. Keith attended Wheeler High School and College at Kennesaw College. First pursuing a career in weather



forecasting but decided the pay and the hours were not worth it. He decided to go for a career in computer programming but soon was bored with all the business classes. He moved on to a career in Home Building instead.

Keith has always had an interest in sky watching. This included weather observing, sky imaging, and an interest in astronomy that was awoken years later thanks to his long time friend Jonathan Cory in 1991. Besides astronomy, Keith enjoys camping, hiking, artistic sketching, woodworking, imaging nature and the sky.

Keith originally joined the Astronomical Society of the Atlantic in 1991 and left in 1994 to start his own observing group with several fellow club members. After a few years, the Rockmart group as they were called became members of the Atlanta Astronomy Club in 1996. He spent a year as Observing Chairman. Not to be out done, he was the editor of the Club's newsletter for 4 years. He held the position of ALCORespondent for the AAC to the Astronomical League for 6 years before retiring from that position. Keith went on to become the Program Chairman for the 2-3 years. Note: you never retire when there is no one to take your place. Keith was recently elected as President and Vice President of the AAC.

Always having an artistic way of looking at things, Keith is currently pursuing a business venture in creating Power Points for money. Perhaps someday he will even get paid for doing this. Known as, Over Productive Imaginations Productions, it is anything but normal in its style. You have to experience it to understand.

His early instruments of choice were a pair of 7 X 35 binoculars and a pair 8 X 56 binoculars. He still has those. The current lineup of telescopes includes a 4-1/4 inch Astroscan, a 10 inch XT10 IntelliScope Dobsonian, and a 13 inch Computerized Dobsonian.

Of course, when it comes to Astronomical League programs, Keith has completed a few. These programs include the Lunar Club, The Telescopic Messier Honorary Club, The Herschel 400 Club, The Binocular Messier Club, The Arp Club, and finally the Double Star Club. Keith also finished the Urban Club, The Deep Sky Binocular, Most of the Lunar II Club, The Suns potter Club, and almost finished with The Caldwell Club. The only problem is that he has not yet submitted his paperwork to the Astronomical League yet for approval as some of these programs, which have been finished for 5 plus years now. Talk about procrastination.

July-October Meeting Announcements

On July 18th, Dan Llewellyn will do a talk/ workshop on basics of video camera, planetary camera, & web camera imaging and processing.

August 15th, Dr. Amy Lovell of Agnes Scott College will do a talk titled "Comets, and the Meteor Shower Connection."

September 19th, Dr. Chris Sirola of Southern Miss will give a talk titled "Happy 100th Birthday Tunguska!"

October 17th, Dr. Angela Sarrazine of Fernbank Science Center will speak on "Open Cluster Research: Strengthening the Cosmic Distance Ladder."

AAC May General Meeting Minutes

by Richard Jakiel, AAC Recording Secretary

The May 16th general meeting of the AAC came to order at 8 PM, with president Peter Macumber (photo below, left) presiding. About 30 AAC members were present, along with a number of visitors. The first order of business was the approval of the BoD reduction for the bylaws. The vote was unopposed, 30 - 0 for the change. The next order of business was the elections of officers and BoD members for the upcoming year. As these were unopposed, a simple vote of affirmation was conducted. The new officers are:

Keith Burns - President (photo below, right)

(open) - 1st VP - Program Chair

Dave Lumpkin - Observing Chair

Sharon Carruthers - Treasurer

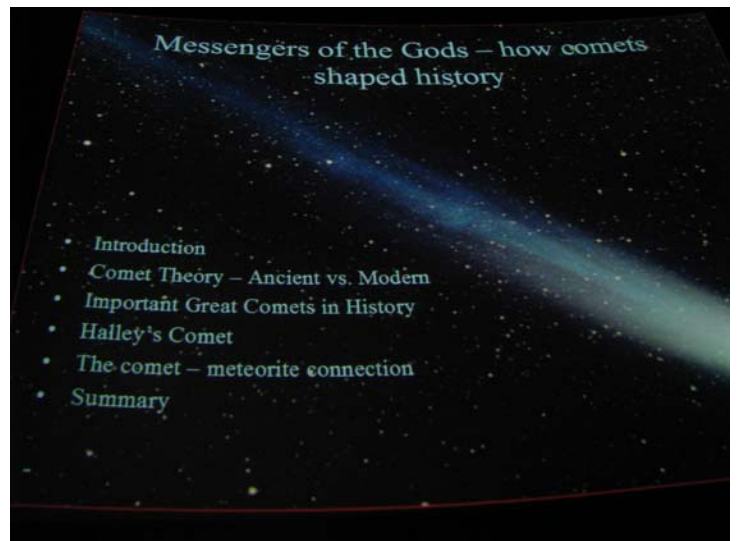
Tom Faber - Corresponding Secretary

Rich Jakiel - Recording Secretary

New BoD members - Don Hall, William Brannet

Art Zorka took over in discussing bylaw changes and (new) officers for the AL. Art then awarded your stalwart recording secretary the "Arp Award" for CCD imaging over 100 of these peculiar galaxies (photo left top). Other short programs included Frank Marchese's review of the AL's Sun observer program (photo left center) and a highly shortened version of the Kow's observing highlights program "There's Nothing to See" (Editor's Note: Keith's program couldn't be completed due to problems with the projector).

The main program for the evening (photo left bottom) was given by AAC secretary and long time member Rich Jakiel. Entitled - Messengers of the Gods - How Comets have Shaped History, it was an entertaining look into how the appearance of a bright comet was linked to the birth/death of kings, wars and revolts and even the deification of a dictator (Caesar). Afterwards, many members headed off to Athens Pizza for the "meeting after the meeting". (Meeting photos by Tom Faber)



The Next AAC Board Meeting

The next Board Meeting of the Atlanta Astronomy Club is scheduled for Sunday, June 22nd at 5:00PM at Bradford Map, Globe & Telescopes, 300 Hammond Dr, Sandy Springs. Contact Keith Burns for details.

Charlie Elliot Meeting Minutes

by Clevis Jones, CE Recording Secretary

(Minutes have been edited for space constraints.)

Attendance: Eighteen guests and members enjoyed the May 17, 2008 CE meeting.

Business: Election Results: Director - Theo Ramakers, Observing Supervisor - Jonathan Wood, Recording Secretary - Ken Poshedly. Many Thanks to the outgoing officers - Very Best wishes to the new officers!

Our astronomy part of the Charlie Elliott JAKES Day Festival at CE provided about 80 people with views of the Sun, along with movies and topical conversation in our "planetarium atmosphere" classroom in the Charlie Elliott Visitor Center. Our club's participation was supported by Sally & Alan Bolton (some very timely help), Jim Honeycutt, Debbie (part of the day) & Clevis Jones, Larry Owens, Theo Ramakers, Stephen Ramsden, Jon Wood, and our Mascot Tiger Junior. Our hosts, Linda May and Alesia Rast of Charlie Elliott, provided the classroom facilities, food, beverages, and support. Thanks to all who helped! Larry Owens, Steve Bieger, and Jon Wood gave brief updates on their club projects. Larry gave an overview of upcoming CE Website improvements - watch the CE Yahoo group for his announcements - and also an overview of that evening's "Field Lab on Astro Imaging". Ray Major filled us in on the AAC elections, Ken Poshedly on the AAC By-laws change.

Feature Presentation: "My 4-Meter Backyard Telescope" by Patrick Durusau. Patrick gave us a review and an update to his early program "My 200-Inch Backyard Telescope" - note how the aperture has increased! Patrick's program pulled a lot of discussion from the group including ideas for future presentations by Patrick about using his virtual observatory to verify if you have found a previously unlisted object such as a double star, and how to use this virtual observatory to search for new discoveries, such as Super Nova Fossils. Exciting! Thank You Patrick!

What's Up Tonight: Steve Bieger filled us in on upcoming celestial events, new target lists, featured science and featured scientists. He demonstrated some points from "AstroPlanner" and suggested downloading version 1.6.1 released in May 2008 - apparently the last free version. Here is the link to AstroPlanner: <http://www.ilangainc.com/astroplanner/download.shtml> Thanks Steve! Thanks for all the programs you have given!

Current Events: Clevis Jones introduced Microsoft's new "WorldWide Telescope" a free program similar in function to Google Earth, but totally focused on the Universe, which is available for download here: <http://www.worldwidetelescope.org/>, a pop quiz - Marie Lott scored 100, the near disastrous return of TMA-11, Phoenix' landing on Mars May 25th (tune into NASA TV via cable or Internet at 6:30 PM. EST for live coverage from JPL Operations Center), and the Launch of Discovery with STS-124 on May 31. "Keep Looking Up", over and out.

Observing Session: Slight obscured skies didn't dampen about 20 folks' enthusiasm. Larry Owens conducted his "Lab class" beginning with collimation techniques. Everyone shared views through their telescopes and binoculars, including the Bolton's with their superb, new Stellarvue 102ED.

Charlie Elliott Future Meetings

by Clevis Jones, CE Recording Secretary

The next Charlie Elliott Chapter meeting is on July 26th. Future meetings are on: Aug. 30, Sep. 27, Oct. 25 (set CE meeting schedule for 2009), Nov. 29, Dec. 27. For meeting updates and other information please check the CEastronomy website: <http://www.CEastronomy.org>

Woodruff Summer Scout Camping

Hi Folks,

The Woodruff Summer Camping program starts in June. For over 7 years, the AAC has gone up one evening a week to give the campers in the Nature Program who are working on their Astronomy Merit badge a chance to look through a real telescope. If you could spare one evening this summer to help out with this valuable program that reaches out to so many youngsters, we would appreciate it.

Help is needed on the following Thursdays: June 5th, June 12th, June 19th, June 26th, July 3rd, July 10th, July 17th, July 24th. If you can help on one or more of these days contact me or post on the AstroList.

If you have any questions about the program, drop me an e-mail at Treasurer@AtlantaAstronomy.org; or call me at 404-843-9610 (work).

Thank You

Sharon Carruthers

New Telescope Announcement

by Dan Llewellyn, Telescope & Instrument Workshop assistant

Telescope Atlanta is pleased to announce the T1 series of Ultra Light Dobsonian Telescopes. David Roberts, telescope designer/engineer, and Dan Llewellyn, owner/engineer, have combined their talents to offer the T1-16, a futuristic minimalist dob which pound for pound packs the best performance of any telescope in production. Sporting a 16 inch F 4.1 mirror, the focal length is 64 and one half inches, and the entire scope comes in at an amazing 69 pounds, making it the lightest 16 inch dob we know of. The heaviest piece for transport is the mirror cell, which is 39 pounds and easily carried by one person.

There were 4 goals in the design of the T1-16. The first was to have the size to be manageable for one person. This includes the weight and the ease of assembly. In less than 5 minutes, one can lift the scope out of the vehicle, assemble, and be ready for observing. The second goal was convenience of transport. We wanted the scope to fit in a sub compact car, so one could drive to their favorite star party or observing site and take the vehicle that gets the best gas mileage. A further benefit is the elimination of the ladder for most people. No more transport worries, or fear of being up on a ladder late at night. A person 5 foot 3 inches need no ladder at the zenith with the T1-16. The third was a clean, professional design for the best looking telescope around. No plywood or laminate, the final production model will have all aluminum and ABS marine board. Take a look, and we think you will agree, there is nothing like the T1-16. It is truly a work of beauty. The fourth goal was performance. Only the finest mirrors from the top mirror makers are used in the T1-16. An inverted 4 vane spider and a 3.1 secondary provide spectacular planetary and deep sky views.



At the Mid South Star Party, the T1-16 debuted to ooohs and aaahs and was a crowd favorite. Preliminary pricing is \$5995 for the base model (baffle and shroud are included), \$8995 with Argo Navis and ServoCat Junior installed for goto and tracking.

For further information, contact Dan Llewellyn at Telescope Atlanta, 404-843-9610. Web: www.telescopeatlanta.com

The Astronomical League

As a member of the **Atlanta Astronomy Club** you are automatically also a member of the **Astronomical League**, a nation wide affiliation of astronomy clubs. Membership in the AL provides a number of benefits for you. They include:

- * You will receive *The Reflector*, the AL's quarterly newsletter.
- * You can use the Book Service, through which you can buy astronomy-related books at a 10% discount.
- * You can participate in the Astronomical League's Observing Clubs. The Observing Clubs offer encouragement and certificates of accomplishment for demonstrating observing skills with a variety of instruments and objects. These include the Messier Club, Binocular Messier Club, the Herschel 400 Club, the Deep Sky Binocular Club, and many others.

To learn more about the Astronomical League and its benefits for you, visit <http://www.astroleague.org>

Two of the Milky Way's Spiral Arms Go Missing

JPL News Releases - June 03, 2008

St. Louis, Mo. -- For decades, astronomers have been blind to what our galaxy, the Milky Way, really looks like. After all, we sit in the midst of it and can't step outside for a bird's eye view.

Now, new images from NASA's Spitzer Space Telescope are shedding light on the true structure of the Milky Way, revealing that it has just two major arms of stars instead of the four it was previously thought to possess.

"Spitzer has provided us with a starting point for rethinking the structure of the Milky Way," said Robert Benjamin of the University of Wisconsin, Whitewater, who presented the new results at a press conference today at the 212th meeting of the American Astronomical Society in St. Louis, Mo. "We will keep revising our picture in the same way that early explorers sailing around the globe had to keep revising their maps."

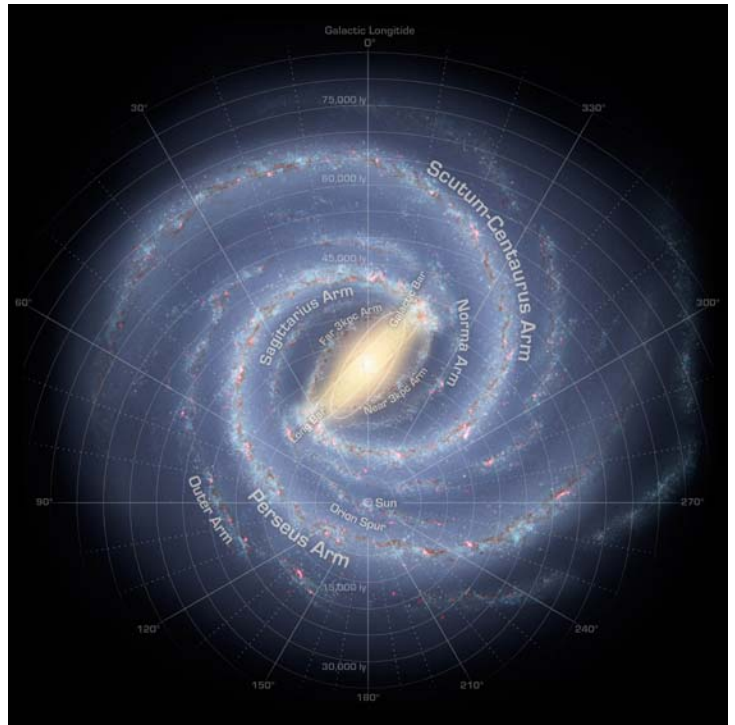
An artist's concept of the structure of our two-armed Milky Way is online at http://www.nasa.gov/mission_pages/spitzer/multimedia/20080603a.html

Since the 1950s, astronomers have produced maps of the Milky Way. The early models were based on radio observations of gas in the galaxy, and suggested a spiral structure with four major star-forming arms, called Norma, Scutum-Centaurus, Sagittarius and Perseus. In addition to arms, there are bands of gas and dust in the central part of the galaxy. Our sun lies near a small, partial arm called the Orion Arm, or Orion Spur, located between the Sagittarius and Perseus arms.

"For years, people created maps of the whole galaxy based on studying just one section of it, or using only one method," said Benjamin. "Unfortunately, when the models from various groups were compared, they didn't always agree. It's a bit like studying an elephant blind-folded."

Large infrared sky surveys in the 1990s led to some major revisions of these models, including the discovery of a large bar of stars in the middle of the Milky Way. Infrared light can penetrate through dust, so telescopes designed to pick up infrared light get better views of our dusty and crowded galactic center. In 2005, Benjamin and his colleagues used Spitzer's infrared detectors to obtain detailed information about our galaxy's bar, and found that it extends farther out from the center of the galaxy than previously thought.

The team of scientists now has new infrared imagery from Spitzer of an expansive swath of the Milky Way, stretching 130 degrees across the sky



and one degree above and below the galaxy's mid-plane. This extensive mosaic combines 800,000 snapshots and includes over 110 million stars.

Benjamin developed software that counts the stars, measuring stellar densities. When he and his teammates counted stars in the direction of the Scutum-Centaurus Arm, they noticed an increase in their numbers, as would be expected for a spiral arm. But, when they looked in the direction where they expected to see the Sagittarius and Norma arms, there was no jump in the number of stars. The fourth arm, Perseus, wraps around the outer portion of our galaxy and cannot be seen in the new Spitzer images.

The findings make the case that the Milky Way has two major spiral arms, a common structure for galaxies with bars. These major arms, the Scutum-Centaurus and Perseus arms, have the greatest densities of both young, bright stars, and older, so-called red-giant stars. The two minor arms, Sagittarius and Norma, are filled with gas and pockets of young stars. Benjamin said the two major arms seem to connect up nicely with the near and far ends of the galaxy's central bar.

"Now, we can fit the arms together with the bar, like pieces of a puzzle," said Benjamin, "and, we can map the structure, position and width of these arms for the first time." Previous infrared observations found hints of a two-armed Milky Way, but those results were unclear because the position and width of the arms were unknown.

Though galaxy arms appear to be intact features, stars are actually constantly moving in and out of them as they orbit the center of the Milky Way, like London commuters in a busy traffic circle. Our own sun might have once resided in a different arm. Since it was formed more than 4 billion years ago, it has traveled around the galaxy 16 times.

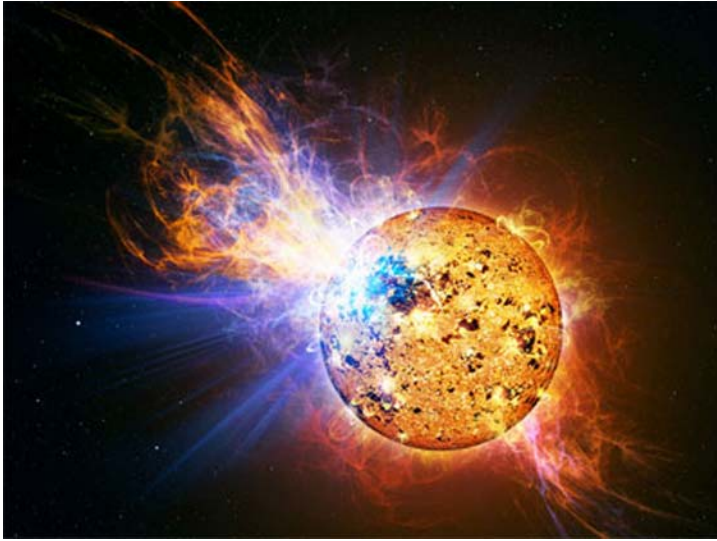
Co-investigators of this research include Ed Churchwell, Marilyn Meade and Brian Babler of the University of Wisconsin, Madison; Barbara Whitney of the Space Science Institute, Madison, Wis.; Rémy Indebetouw of the University of Virginia, Charlottesville; and Christer Watson of Manchester College, Ind. NASA's Jet Propulsion Laboratory, Pasadena, Calif., manages the Spitzer mission for NASA's Science Mission Directorate, Washington. Science operations occur at the Spitzer Science Center at the California Institute of Technology, also in Pasadena. For more information about Spitzer, visit <http://www.spitzer.caltech.edu/spitzer> and <http://www.nasa.gov/spitzer>

A Pipsqueak Star Unleashes Monster Flare

NASA-GSFC News Release - May 20, 2008

GREENBELT, Md. - On April 25, NASA's Swift satellite picked up the brightest flare ever seen from a normal star other than our Sun. The flare, an explosive release of energy from a star, packed the power of thousands of solar flares. It would have been visible to the naked eye if the star had been easily observable in the night sky at the time.

The star, known as EV Lacertae, isn't much to write home about. It's a run-of-the-mill red dwarf, by far the most common type of star in the universe. It shines with only one percent of the Sun's light, and contains only a third of the Sun's mass. At a distance of only 16 light-years, EV Lacertae is one of our closest stellar neighbors. But with its feeble light output, its faint magnitude 10 glow is far below naked-eye visibility.



This artwork depicts the incredibly powerful flare that erupted from the red dwarf star EV Lacertae. Credit: Casey Reed/NASA

“Here’s a small, cool star that shot off a monster flare. This star has a record of producing flares, but this one takes the cake,” says Rachel Osten, a Hubble Fellow at the University of Maryland, College Park and NASA’s Goddard Space Flight Center in Greenbelt, Md. “Flares like this would deplete the atmospheres of life-bearing planets, sterilizing their surfaces.”

The flare was first seen by the Russian-built Konus instrument on NASA’s Wind satellite in the early morning hours of April 25. Swift’s X-ray Telescope caught the flare less than two minutes later, and quickly slewed to point toward EV Lacertae. When Swift tried to observe the star with its Ultraviolet/Optical Telescope, the flare was so bright that the instrument shut itself down for safety reasons. The star remained bright in X-rays for 8 hours before settling back to normal.

EV Lacertae can be likened to an unruly child that throws frequent temper tantrums. The star is relatively young, with an estimated age of a few hundred million years. The star rotates once every four days, which is much faster than the sun, which rotates once every four weeks. EV Lacertae’s fast rotation generates strong localized magnetic fields, making it more than 100 times as magnetically powerful as the Sun’s field. The energy stored in its magnetic field powers these giant flares.

EV Lacertae’s constellation, Lacerta, is visible in the spring for only a few hours each night in the Northern Hemisphere. But if the star had been more easily visible, the flare probably would have been bright enough that the star could have been seen with the naked eye for one to two hours.

The flare’s incredible brightness enabled Swift to make detailed measurements. “This gives us a golden opportunity to study a stellar flare on a second-by-second basis to see how it evolved,” says Stephen Drake of NASA Goddard.

Since EV Lacertae is 15 times younger than our Sun, it gives us a window into our solar system’s early history. Younger stars rotate faster and generate more powerful flares, so in its first billion years the sun must have let loose millions of energetic flares that would have profoundly affected Earth and the other planets.

Flares release energy across the electromagnetic spectrum, but the extremely high gas temperatures produced by flares can only be studied with high-energy telescopes like those on Swift. Swift’s wide field and rapid repointing capabilities, designed to study gamma-ray bursts, make it ideal for studying stellar flares. Most other X-ray observatories have studied this star and others like it, but they have to be extremely lucky to catch and study powerful flares due to their much smaller fields of view.

Says Eric Feigelson of Penn State University in University Park, Pa., “I find it remarkable that a satellite designed to detect the explosive birth of black holes in distant galaxies can also detect explosions on stars in the immediate neighborhood of our Sun.”

Hubble Finds Missing Matter, Probes Intergalactic Web

Space Telescope Science Institute News Release - May 20, 2008

Although the universe contains billions of galaxies, only a small amount of its matter is locked up in these behemoths. Most of the universe’s matter that was created during and just after the Big Bang must be found elsewhere.

Now, in an extensive search of the local universe, astronomers say they have definitively found about half of the missing normal matter, called baryons, in the spaces between the galaxies. This important component of the universe is known as the “intergalactic medium,” or IGM, and it extends essentially throughout all of space, from just outside our Milky Way galaxy to the most distant regions of space observed by astronomers.

The questions “where have the local baryons gone, and what are their properties?” are being answered with greater certainty than ever before.

“We think we are seeing the strands of a web-like structure that forms the backbone of the universe,” Mike Shull of the University of Colorado explained. “What we are confirming in detail is that intergalactic space, which intuitively might seem to be empty, is in fact the reservoir for most of the normal, baryonic matter in the universe.”

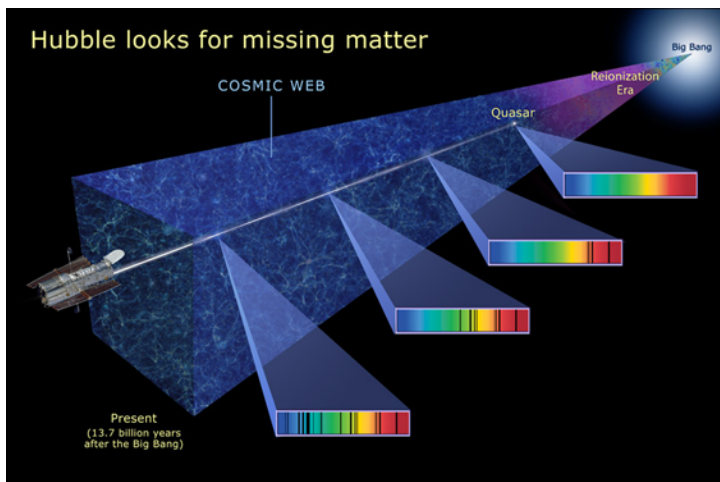
Hubble observations made nearly a decade ago by Todd Tripp and colleagues first reported finding the hottest portion of this missing matter in the local universe. That study utilized spectroscopic observations of one quasar to look for absorbing intergalactic gas along the path to the quasar.

In the May 20 issue of *The Astrophysical Journal*, Charles Danforth and Shull report on observations taken along sight-lines to 28 quasars. Their analysis represents the most detailed observations to date of how the IGM looks within about four billion light-years of Earth.

Baryons are protons, neutrons, and other subatomic particles that make up ordinary matter such as hydrogen, helium, and heavier elements. Baryonic matter forms stars, planets, moons, and even the interstellar gas and dust from which new stars are born.

Astronomers caution that the missing baryonic matter is not to be confused with “dark matter,” a mysterious and exotic form of matter that is only detected via its gravitational pull.

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This illustration shows how the Hubble Space Telescope searches for missing ordinary matter, called baryons, by looking at the light from quasars several billion light-years away. Imprinted on that light are the spectral fingerprints of the missing ordinary matter that absorbs the light at specific frequencies (shown in the colorful spectra at right). The missing baryonic matter helps trace out the structure of intergalactic space, called the “cosmic web.” Credit: NASA, ESA, and A. Feild (STScI)

Danforth and Shull, of the Department of Astrophysical and Planetary Sciences at the University of Colorado in Boulder, looked for the missing baryonic matter by using the light from distant quasars to probe spider-web-like structure that permeates the seemingly invisible space between galaxies, like shining a flashlight through fog.

Using the Space Telescope Imaging Spectrograph (STIS) aboard NASA's Hubble Space Telescope and NASA's Far Ultraviolet Spectroscopic Explorer (FUSE), the astronomers found hot gas, mostly oxygen and hydrogen, which provide a three-dimensional probe of intergalactic space. STIS and FUSE found the spectral “fingerprints” of intervening oxygen and hydrogen superimposed on the quasars' light.

The bright quasar light was measured to penetrate more than 650 filaments of hydrogen in the cosmic web. Eighty-three filaments were found laced with highly ionized oxygen in which five electrons have been stripped away.

The presence of highly ionized oxygen (and other elements) between the galaxies is believed to trace large quantities of invisible, hot, ionized hydrogen in the universe. These vast reservoirs of hydrogen have largely escaped detection because they are too hot to be seen in visible light, yet too cool to be seen in X-rays.

The oxygen “tracer” was probably created when exploding stars in galaxies spewed the oxygen back into intergalactic space where it mixed with the pre-existing hydrogen via a shockwave which heated the oxygen to very high temperatures.

The team also found that about 20 percent of the baryons reside in the voids between the web-like filaments. Within these voids could be faint dwarf galaxies or wisps of matter that could turn into stars and galaxies in billions of years.

Probing this vast cosmic web will be a key goal for the Cosmic Origins Spectrograph (COS), a new science instrument that astronauts plan to install on Hubble during Servicing Mission 4 later this year.

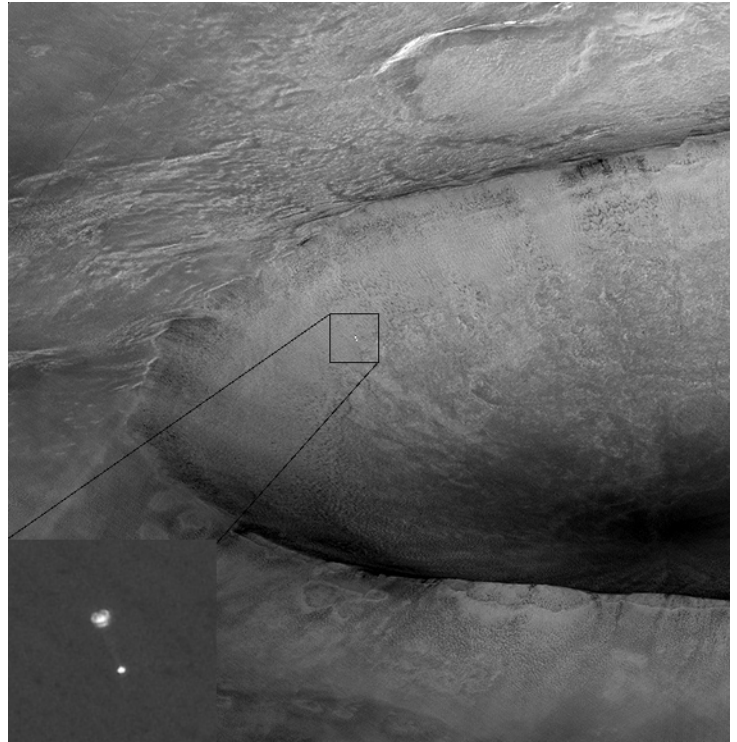
“COS will allow us to make more robust and more detailed core samples of the cosmic web,” Shull said. “We predict that COS will find considerably more of the missing baryonic matter.”

“Our goal is to confirm the existence of the cosmic web by mapping its structure, measuring the amount of heavy metals found in it, and measuring

its temperature. Studying the cosmic web gives us information on how galaxies built up over time.”

The COS team hopes to observe 100 additional quasars and build up a survey of more than 10,000 hydrogen filaments in the cosmic web, many laced with heavy elements from early stars.

The Hubble Space Telescope is a project of international cooperation between NASA and the European Space Agency (ESA) and is managed by NASA's Goddard Space Flight Center (GSFC) in Greenbelt, Md. The Space Telescope Science Institute (STScI) conducts Hubble science operations. The institute is operated for NASA by the Association of Universities for Research in Astronomy, Inc., Washington, DC.



Phoenix Descending to Mars

The High Resolution Imaging Experiment (HiRISE) on NASA's Mars Reconnaissance Orbiter acquired this dramatic oblique image of Phoenix descending on its parachute. Shown here is a wider view of the full image, showing a 10 kilometer diameter crater informally called “Heimdall,” and an improved full-resolution image of the parachute and lander.

Although it appears that Phoenix is descending into the crater, it is actually about 20 kilometers in front of the crater. It is difficult to believe that it is in front of the crater because it is so much smaller, but in reality it is, and that's a good thing because landing on the steep rocky slopes of the crater would have been far too exciting (or risky).

Images from the lander clearly show that it sits on a flat plain, although the rim of Heimdall may be visible on the horizon. Given the position and pointing angle of MRO, Phoenix is at about 13 km above the surface, just a few seconds after the parachute opened. This improved image shows some details of the parachute, including the gap between upper and lower sections. At the time of this observation, MRO had an orbital altitude of 310 km, traveling at a ground velocity of 3.4 kilometers/second, and a distance of 760 km to the Phoenix lander.

The image was rotated to a position that seems approximately parallel to the horizon based on the elongation of Heimdall crater, but this is not exact. Thus, although Phoenix appears to hang from the parachute at an

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angle, as if swaying in the wind, the exact geometry has not yet been determined. The parachute image is very sharp as its apparent motion was straight down the HiRISE TDI (time delay integration) columns. However, the surface of Mars was moving at an angle to the TDI columns, and thus is smeared by a few pixels, although the smear is not apparent at the reduced scale of the image shown here.

The sun is almost directly behind HiRISE, so the parachute should be casting a shadow onto the slope of the crater, but we cannot determine which of many dark spots is the shadow until a detailed geometric analysis has been completed. Credit: NASA/JPL/University of Arizona

Georgia Astronomy in State Parks (GASP) Events

The GASP events for 2008 scheduled so far are:

August 30 - John Tanner
State Park.

November 8 - Red Top
Mountain 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. Photo by Holly Ritger.

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>

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 (\$35)** for a family or single person membership. College Students membership fee is **\$15 (\$20)**. These fees are for a one year membership (\$5 per year extra charge to receive the *Focal Point* mailed).

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 **\$34** 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.

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.

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Board: William Brannet - Contact Info TBA

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Woodruff Observ. Coordinator: Sharon Carruthers
Treasurer@AtlantaAstronomy.org

Webmaster Atlanta Astronomy: Peter Macumber 770-941-4640
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Directions to White Hall at Emory

Our meetings are generally held in a classroom in White Hall. To get to White Hall, turn onto Dowman Drive from North Decatur Road at the five way intersection (across from Everybody's Pizza). White Hall is located across from the new Science & Math building. Parking is available along Dowman Drive on both sides of the road. **The parking lot on the left behind the Admissions Building may be closed.** Additional parking is available in two parking decks near White Hall. For maps to the decks see <http://map.emory.edu>. For more detailed directions to Emory University, visit www.atlantaastronomy.org or go to the Emory web site.

Calendar by Tom Faber (All times EDT unless noted)

- June 3rd, Tuesday: New Moon.
June 7th, Saturday: **CEC Meeting - See pg 3 for details.**
June 10th, Tuesday: Moon First Quarter.
June 14th, Saturday: Earliest Sunrise (~6:25AM at Atlanta).
June 18th, Wednesday: Full Moon.
June 20th, Friday: **AAC Meeting at White Hall, 8PM, Emory University.** Solstice at 7:59PM.
June 21st, Saturday: **Telescope & Instr Workshop - Contact Sharon Carruthers for details.**
June 22nd, Sunday: **AAC Board Meeting, 5PM at Bradford Map, Globe, and Telescope.**
June 26th, Thursday: Moon Last Quarter.
June 27th, Friday: Latest Sunset (~8:52 PM at Atlanta).
June 30th, Monday: Moon near M45. Mars near Regulus.
July 1st, Tuesday: Mercury Greatest Western Elongation.
July 2nd, Wednesday: New Moon.
July 4th, Friday: Earth at Aphelion.
July 5th, Saturday: Moon near Mars, Saturn, and Regulus.
July 8th, Tuesday: Jupiter at Opposition.
July 9th, Wednesday: Mars near Saturn.
July 10th, Thursday: Moon First Quarter.
July 18th, Friday: **AAC Meeting at White Hall, 8PM, Emory University.** Full Moon.
July 19th, Saturday: **Telescope & Instr Workshop - Contact Sharon Carruthers for details.**
July 25th, Friday: Moon Last Quarter.
July 26th, Saturday: **CEC Meeting - See pg 3 for details.** Delta Aquarid Meteors.
July 29th, Tuesday: Mercury at Superior Conjunction.
July 31st, Thursday: New Moon.
August 8th, Friday: Moon First Quarter.
August 12th, Tuesday: Perseid Meteors.

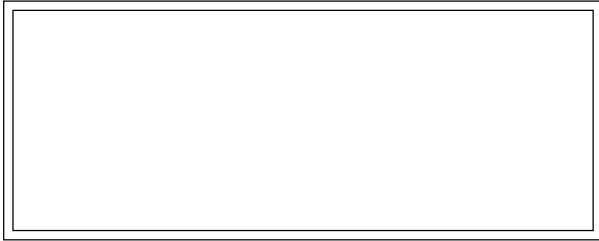
Atlanta Astronomy Club Listserve

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 Submission Information

Please send articles, pictures, and drawings in electronic format on anything astronomy related to Tom Faber at focalpoint@atlantaastronomy.org. Please send images separate from articles, not embedded in them. Articles are preferred as plain text files but Word documents are okay. You can submit articles anytime up to and including the deadline date. **The deadline for July is Friday, June 27th at 4:00 PM Submissions will no longer be accepted after the deadline.**

FIRST CLASS



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

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Atlanta Astronomy Club

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FROM: