



# GuideStar

**October, 2009**

*At the October 2 meeting...*

## **Georges LeMaitre: The Forgotten Cosmologist**

### **Anthony Settles - HAS Member**

- Monsignor Georges LeMaitre of Belgium was both a cosmologist and a Catholic Priest. In 1931 he developed his theory of "The Primival Atom." This was his theory of the origin of the universe and this theory built upon the work of Russian mathematician Aleksandr Friedman (died 1925), in developing the idea of the expanding universe.
- This was later confirmed by Edwin Hubble's observations at Mt. Wilson using the then largest-in-the-world 100 inch reflector.
- LeMaitre's cosmology also has theological implications. For then Pope Pius XII LeMaitre's cosmology was confirmation that "God is the Creator of the Universe!" However, LeMaitre wanted his cosmology to stand on scientific grounds only. He wanted no part of "Science vs. Religion" controversies. In January 1966, on his hospital bed, he was shown the article in the Astrophysical Journal on the Penzias and Wilson discovery of the Cosmic Microwave Background Radiation the year before. This was the confirmation of "Big Bang Cosmology" that LaMaitre had long awaited.
- He died just five months later on June 20, 1966.

### **Highlights:**

<b>Aaron Clevenson .....</b>	<b>5</b>
<b>Astronomical Callendar Offered .....</b>	<b>7</b>
<b>HAS Banquet Announcement .....</b>	<b>8</b>
<b>Spitzer, the Sequel .....</b>	<b>10</b>
<b>Gravational Wave Astronomy .....</b>	<b>11</b>
<b>Observatory Corner.....</b>	<b>12</b>
<b>51 Peg - 1st Exoplanet Found Here ...</b>	<b>13</b>

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### **HAS Web Page:**

<http://www.AstronomyHouston.org>

See the *GuideStar's* Monthly Calendar of Events to confirm dates and times of all events for the month, and check the Web Page for any last minute changes.

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### **Schedule of meeting activities:**

All meetings are at the University of Houston Science and Research building. See the inside back cover for a map to the location.

Novice meeting: ..... 7:00 p.m.  
*First Magnitude Stars -- Don Pearce*

Site orientation meeting: ..... 7:00 p.m.  
Classroom 121

General meeting: ..... 8:00 p.m.  
Room 117

See last page for a map and more information.

## The Houston Astronomical Society

The Houston Astronomical Society is a non-profit corporation organized under section 501 (C) 3 of the Internal Revenue Code. The Society was formed for education and scientific purposes. All contributions and gifts are deductible for federal income tax purposes. General membership meetings are open to the public and attendance is encouraged.

### Officers & Past President

President: Bill Leach.....H: 281-893-4057  
 Vice Pres: Ken Miller .....C: 713-826-1049  
 Secretary: Open  
 Treasurer: Bill Flanagan .....H:713-699-8819  
 Past President: Steve Sartor .....

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Steve Goldberg.....713-721-5077  
 Don Pearce.....713-432-0734  
 Doug McCormick.....  
 Allen Grissom .....281-617-9813  
 John Missavage.....

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 Education..... Richard Nugent .....  
 Field Tr./Obsg..... Mike Edstrom .....281-347-7267  
 Novice..... Justin McCollum.....  
 Observatory..... Bob Rogers .....281-460-1573  
 Program..... Brian Cudnik.....  
 Publicity..... John Missavage.....  
 Telescope..... Bram Weisman.....  
 Welcoming..... Susan Bruneni.....

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 Librarian..... Peggy Gilchrist .....281-443-8773  
 Logo Mds Sales..... Judy Dye .....281-498-1703  
 Long Range Plan..... Bill Leach.....281-893-4057  
 Parliamentarian ..... Kirk Kendrick .....281-633-8819  
 Publ. Star Party ..... Richard Nugent .....713-524-1993  
 Rice U. Coord..... Matt Delevoryas .....713-666-9428  
 Schedule Obs'v't'y ..... Steve Goldberg .....713-721-5077  
 Texas Star Pty ..... Steve Goldberg .....713-721-5077

### Special Interest Groups & Help Committees

These are now listed on the inside of *GuideStar* (not every month). See the Table of Contents

### Advisors

Dr. Reginald DuFour, Rice Univ.  
 Dr. Lawrence Pinsky, U. of H.  
 Dr. Lawrence Armendarez, U. of St. Thomas

### Dues and Membership Information

Annual Dues:Regular .....\$36  
 Associate .....\$6  
 Sustaining .....\$50  
 Student .....\$12  
 Honorary ..... N/C

All members have the right to participate in Society functions and to use the Observatory Site. Regular and Student Members receive a subscription to *The Reflector*. Regular, Student, and Honorary Members receive *The GuideStar*. Associate Members, immediate family members of a Regular Member, have all membership rights, but do not receive publications. Sustaining members have the same rights as regular members with the additional dues treated as a donation to the Society. *Sky & Telescope* and *Astronomy* magazines are available to members at a discount.

Membership Application: Send funds to address shown on outside cover of *GuideStar*. Attention - Treasurer, along with the following information: Name, Address, Phone Number, Special Interests in Astronomy, Do you own a Telescope? (If so, what kind?), and where you first heard of H.A.S.

## Table of Contents

3.....	October/November Calendar
	Web site
	Columbus Field Trips
4.....	Observations of the Editor
5.....	Aaron Clevenson
7.....	Astronomical Calendar Offered
8.....	HAS Banquet Announcement
9.....	HAS Banquet Sign-Up Form
10.....	Spitzer, the Sequel
11.....	Gravitational Wave Astronomy
	Banquet Abstract
12.....	Observatory Corner
13.....	51 Peg - 1st Exoplanet Found Here

## Special Interest Group Listing

Any member who wants specific information on a SIG listed below may call the listed individual. Also, see the "Ad Hoc Committee Chairpersons" on the inside front cover and the "Special Help Volunteers" listing (not in every issue).

Advanced..... Bill Leach.....281-893-4057  
 Comets ..... Don Pearce .....713-432-0734  
 Lunar & Planetary..... John Blubaugh .....713-921-4275

## Other Meetings...

**Fort Bend Astronomy Club** meets the third Friday of the month at 8:00 p.m. at the First Colony conference Center. Novice meeting begins at 7:00, regular meeting begins at 8:00. Web site: <http://www.fbac.org>

**Johnson Space Center Astronomical Society** meets in the the Lunar and Planetary Institute on the 2nd Friday of each month. Web site: [www.jscas.net](http://www.jscas.net)

**North Houston Astronomy Club** meets at 7:30 p.m. on the 4th Friday of each month in the Teaching Theatre of the Student Center at Kingwood College. Call 281-312-1650 or E-mail [leach@nhmccd.edu](mailto:leach@nhmccd.edu). Web site: [www.astronomyclub.org](http://www.astronomyclub.org)

# October / November Calendar:



Photo by Scott Mitchell

Check the web site:  
[www.astronomyhouston.org](http://www.astronomyhouston.org)  
**Webmaster: Kay McCallum**  
[kaym@mcclibrary.net](mailto:kaym@mcclibrary.net)

The Houston Astronomical Society Web page has information on the society, its resources, and meeting information.

Want your astronomy work and name on the Internet for the whole world to see? Have some neat equipment? Pictures in film, CCD, hand drawings or video format are all welcome on the page. Do you have an idea to improve the page? I'm listening. Send me Email at [kaym@mcclibrary.net](mailto:kaym@mcclibrary.net).

Date	Time	Event
<b>October</b>		
2	7:00 p.m.	HAS Novice Meeting, U of H
	8:00 p.m.	HAS General Meeting, U of H
4	1:11 a.m.	Full (Harvest) Moon
5	8:00 p.m.	Mercury at greatest elongation west
10	6:30-7:30 p.m.	HAS Banquet Registration & Cash Bar
	7:45-9:30 p.m.	HAS Banquet, Marriot Westchase Richmond Room
11	3:56 a.m.	Moon at last quarter
17		Prime Night, All Clubs Star Party/BBQ Columbus Observing Site
18	12:32 a.m.	New Moon
21		Orionid meteors peak
23	8:00 p.m.	Regional All Clubs Meeting, HMNS-Arnold Hall Registration & Refreshments from 7 to 8 p.m. see <a href="http://www.astronomyday.org">www.astronomyday.org</a>
24	3:00-10:30 p.m.	Astronomy Day, George Observatory
26	7:41 p.m.	Moon at first quarter

## November

1	2:00 a.m.	Daylight Savings Time Ends Move clocks back one hour
	9:00 a.m.	Mars 0.23 deg. NNE of center of Beehive Cluster
2	1:14 p.m.	Full Moon
6	7:00 p.m.	HAS Novice Meeting, U of H
	8:00 p.m.	HAS General Meeting, U of H
9	9:57 a.m.	Moon at last quarter
14		Prime Night, Columbus Observing Site
16	1:13 p.m.	New Moon
17		Leonid meteors peak
24	3:38 p.m.	Moon at first quarter

Send calendar events to Doug McCormick  
 - [skygazer10@sbcglobal.net](mailto:skygazer10@sbcglobal.net)

## Columbus Field Trips 2009

**Mike Edstrom**  
 Field trip/Observing committee chair

The schedule is as follows:

- October 17 - All clubs BBQ
- December 19 – HAS Observing

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**GuideStar deadline**

**for the November**

**issue**

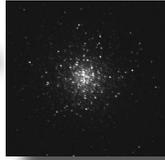
**is October 15**

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# Observations... of the editor

by Bill Pellerin, GuideStar Editor



## October...

It has to be one of our favorite months. There are plenty of things going on this month:

- HAS Banquet (see details in this *GuideStar*) - October 10
- All Clubs Meeting - October 23
- Astronomy Day - October 24

October is the first full month of the fall season, and the one in which the likelihood of clear skies improves substantially. Already, as I write this, the weather forecasters are predicting cool fronts moving through the area. The fronts clear out the skies and give us those dark blue sky days and dark black sky nights that we long for. By mid October, Orion is rising at 11:00 p.m., so can winter be too far behind?

We also have the opportunity to participate in Astronomy Day at the George Observatory. This award winning event attracts thousands of people and requires a lot of volunteers to be a success. I'll be out there with a solar telescope for the day and a small refractor for the night. I'll also be doing a short, outside talk on Epsilon Aurigae. Go to [astronomyday.org](http://astronomyday.org) for more information.

## The Citizen Sky Project

If you check out the data on Epsilon Aurigae at [www.citizensky.org](http://www.citizensky.org), it's clear that the eclipse has begun. It's not too late for you to jump into the fray and do some observations of your own. Go to the web site, and even if you've never estimated a star's brightness before, you'll find the information you need to get started.



There is plenty to see. The eclipse is expected to last for a couple of years and the history of this event is that there is some brightening at mid-eclipse. You want to be geared up to watch for that as well.

Eps Aur has been a morning object for the last few months, but as summer turns to fall, we can consider it a late evening object instead. By mid October, the star rises at 8:30 p.m. and will be far enough above the horizon by 10:30 p.m. that you'll be able to get a good look at it before bedtime. By then, it's about 20 degrees above the horizon, not optimum, but well placed for a good view.

Remember also, that you can see this from your house in Houston. My house is 3 miles from downtown, and I can see it easily!

## What are you doing?

Now that it's beginning to get a bit cooler and (we hope) clearer) I suspect that a lot of you will be spinning up new projects. What are they? Write an article about what you're doing for the *GuideStar* and send it to me.

This weekend, I've been working on measuring the periodic error of my German equatorial telescope mount. Sounds like fun, huh? Not really, but knowing the performance of the mount is useful when working on imaging programs of any kind. My imaging is (so far) limited to photometry but who knows?

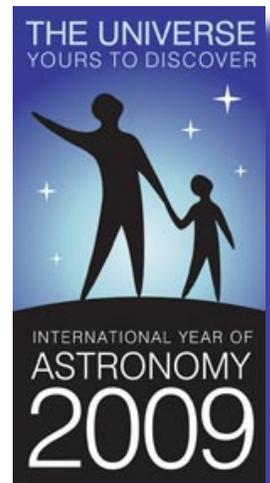
Are there improvements that can be made to periodic error? Yes.. there's PEC (periodic error correction) built into the electronics, there are mechanical improvements that can be made, there's autoguiding (which doesn't remove the error, but can correct for it. Or, the old standby -- throw money at it by getting a mount with lower PE.

Whatever you're working on, have fun, remember that it's your hobby, not your job, and tell us about it.

Enjoy your October.

**Until next time...**  
**clear skies and new moons!**

..Bill



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## *Just Looking*

A GuideStar Interview by Clayton L. Jeter

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## **Aaron Clevenson**

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**H**ave you met Aaron Clevenson yet? You may not have...but I bet you have seen him standing not too far from a telescope at a local star party. Aaron is an amateur that is everywhere in the Houston astronomy community. I've seen him many times down at the George Observatory in Fort Bend County for "Astronomy Day". He is a former president with the North Houston Astronomy Club. This guy is busy. Read his bio below and you'll understand that he is all over the area promoting astronomy.

One of my favorite passions in this hobby is working on the Astronomical League's observing programs (working on two of them at this time). Aaron is very active in this too; he is an AL coordinator for several of these programs. I like the idea of logging what I see at the eyepiece, and these observing programs are a real challenge that keeps me interested in "the hunt".

I enjoy listening to him speak about the night sky at various local events. The guy is a great speaker. He has real passion for the hobby, and it sure shows. Here's Aaron...

### ***The Aaron Clevenson bio...***

Dr. Aaron Clevenson is a local amateur astronomer. He is the Outreach Coordinator for the North Houston Astronomy Club and an Adjunct Astronomy Professor at Lone Star College - Montgomery and Kingwood. He is one of the Astronomical League's National Observing Program Coordinators, a Master Observer, and Coordinator for the Astronomical League's Constellation Hunter Clubs, Lunar II Club, Galileo Club, and the Planetary Observers/Solar System Club. He is the Observatory Director of Humble ISD's new Administaff Observatory in Humble, TX.

"I was introduced to astronomy at 3:36:13 PM on July 20, 1963 (I was 7 years old). My sister built a cardboard box solar observatory so I could safely view the solar eclipse. It was amazing. There were additional experiences that built my passion: meteor watching in western Massachusetts in 1967 (where I saw my first two satellites), taking an astronomy course in college, and finally working one summer as a volunteer at Harvard University's Observatory in Harvard, MA. 12 years ago I bought my 10-inch Meade LX200 telescope, and I have been hopelessly hooked on the heavens since. Now, I find myself involved in building and opening Humble ISD's Administaff Observatory. It doesn't get any better than this."

### ***The Aaron Clevenson interview...***

**Clayton:** Once again, it is a real pleasure to interview a local area amateur astronomer.

Hello Aaron... great to have you here for this interview. I liked your Bio; you seem to be quite a busy fellow. Is it hard to coordinate your home tasks, work, and still have time for looking up into the cosmos at night? Where does all this energy come from?

**Aaron:** The real problem with astronomy is



"so much to see, and so little time". This means it should never grow tiresome because there is always something new to explore. The energy? It comes from seeing things I have never seen before. I get a recharge every time I see something special. There is always time in my schedule for the things I am passionate about.

**Clayton:** In your Bio, you stated that you were introduced to astronomy at 3:36:13 PM on July 20, 1963. Can you elaborate a bit on this exact time? You must be kidding about this precise moment in time!

**Aaron:** I am sure that it is probably off by a few seconds, and perhaps even minutes, but that time was the moment of maximum solar eclipse near Boston, Massachusetts. My sister took a refrigerator cardboard box, cut a hole in it, covered it

*Continued ...*

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## Just Looking... from previous page

with aluminum foil, and made a pinhole in it. On the inside of the opposite side of the box she put white paper. There you have it: a pinhole projection system for viewing a solar eclipse.

**Clayton:** Tell us about your 12-year old Meade 10" LX-200. Has this Schmidt-Cassegrain been upgraded in any way? Have you got the itch to move up to larger aperture?

**Aaron:** Most people, when they get involved in astronomy, start small. I went the other way. I bought my 10-inch scope first. I knew I wanted a good scope, and I waited until the time in my life when I could afford the scope I wanted, and could afford the time to use it. After using my 10-inch scope for almost 10-years, I decided to buy a 125 mm Meade ETX. It is my "throw and go" scope. My 10-inch is one of the last pre-GPS scopes. No modifications have been needed, and it has never needed collimation.

**Clayton:** Are you a visual observer only? Tell us about a typical observing session for yourself.

**Aaron:** Yes, visual! The Hubble Telescope is a fine instrument, but if I can't strap on an eyepiece, then it is not a priority for me. I own a CCD, and someday, when I have exhausted everything I can see visually, I will rev it up. I like to use the Astronomical League certifications as my observing lists. They give me something to shoot for. I use my "What's Up Tonight, Doc?" spreadsheet (available from the NHAC website for download: [www.astronomyclub.org](http://www.astronomyclub.org)). I use my go-to scope (without shame) and seek out my objects. I sketch everything. I believe that when you sketch your observations, you actually see more detail.

**Clayton:** Where is most of your observing performed?

**Aaron:** I have earned many of the Astronomical League certifications. Much of that observing has been done from my driveway in Humble. I have done some observing from the NHAC dark sites, and TSP. But now that it is operating, I expect to spend a great deal of time at Humble ISD's Administaff Observatory ([www.humble.k12.tx.us/observatory.htm](http://www.humble.k12.tx.us/observatory.htm)). I have already seen an 8<sup>th</sup> moon of Saturn there.

**Clayton:** *Sky and Telescope*, *Astronomy Technology Today*, or *Astronomy*? Why?

**Aaron:** Any magazine that fires up your motivation to get out there and observe is a good one. I have used *Astronomy* and currently use *Sky and Telescope*. I find that it appeals to the level I am at and meets my needs at this time.

**Clayton:** Do you have an amateur observing mentor?

**Aaron:** Many... I have many astronomers who provide advice and expertise, answers and encouragement. A few of note come to mind. In the beginning, it would have been Paul Downing (now in Spain). Currently it would be people like Bill Leach and Dave Clark. But really, there are many, each with their area of expertise.

**Clayton:** Have you a favorite star party that you attend regularly?

**Aaron:** I know I am partial, but it is the NHAC barbeques: burgers and dogs, great people, and heavenly wonders. It doesn't get any better than that. No matter what club you belong to, if you are not going to the star parties, you are missing one of the best benefits of membership.

**Clayton:** Have you got any ideas on how we can get our young folks interested in observing? Let's face it, we are all starting to go "gray" and we need someone to carry the torch.

**Aaron:** This is exactly why I am the volunteer Observatory Director at the Administaff Observatory and the Outreach Coordinator for NHAC. We need to provide opportunities for our youth to look through telescopes, to see the universe through their own eyes, to imagine the possibilities, and to dream. Some will be bitten and ask for more. We also need to protect parents from buying DSTs (Department Store Telescopes). The only thing worse than no telescope is a bad telescope. And lastly, we need to bring back the night sky. It is hard to get excited and dream, when you can only see the 6 brightest stars at night because of all the light pollution.

**Clayton:** How do you envision amateur astronomy in the next 25 years?

**Aaron:** The sky is the limit (sorry, I had to say that). As in the past 25 years, telescopes will become less expensive and more available. The quality will improve and newer technologies will bring additional functionality to the backyard telescope users. Unless we take action, light pollution will also be increasing. I expect we will see more amateurs with fully robotic telescopes. We will be doing spectral analysis. We will be searching for supernovae and extrasolar planets.

**Clayton:** Do you have any helpful advice to pass on to observers just starting out in astronomy?

*Continued ...*

# *The 2010 Astronomical Calendar:*

## *specially priced for League members*

The Astronomical League is pleased to announce a special offer for our members from the Universal Workshop, the producers of Guy Ottewell's popular Astronomical Calendar. They are making the 2010 edition of the Calendar available at a discounted price.

There are plenty of good reasons why it has been published for over thirty years. The 2010 edition will not disappoint! Packed throughout the Astronomical Calendar's 84 pages are monthly sky charts; daily celestial highlights; charts, tables, and explanations of planetary movements; eclipse times and paths; and lunar occultation specifics. There are extensive descriptions of the year's meteor showers and periodic comets, as well. This calendar tells, in clear language, what events occur and when they happen.

League members can order this incredible compilation of the year's celestial events for \$19.95, shipping included. (It is normally priced at \$24.95 with another \$7 added for shipping.) Volume discounts (a minimum of 15 copies) for clubs are available. But, to take advantage of the free shipping offer, you must order by Friday October 31, and either use the special website, [www.Universalworkshop.com/clubs.htm](http://www.Universalworkshop.com/clubs.htm), or call 800-533-5083. The League's special low price of \$19.95 expires on December 31, 2009. [Universalworkshop.com](http://Universalworkshop.com) accepts Mastercard, Visa, Discover, American Express and PayPal.

### *Publicity Suggestion Box*

I welcome any suggestions that *any* member has to offer. It doesn't matter how trivial you think your idea may be. All input will be reviewed and welcomed.

Let's grow.

Please drop me a note at the following address.

[itjdm0@yahoo.com](mailto:itjdm0@yahoo.com)

John Missavage- HAS Publicity

### *Just Looking... from previous page*

**Aaron:**

- 1) The most important advice is "Join a local astronomy club." And do this before you buy anything.
- 2) Your first purchase should be a good planesphere (white with black stars) and a red flashlight (LED is really much better).
- 3) Learn the major constellations to find your way around the night sky (maybe work on the AL's Constellation Hunter certification).
- 4) Don't underestimate the value of and enjoyment from using binoculars.
- 5) Try before you buy. Talk to the astronomers in your club (see #1). Go to the star parties and look through the telescopes.

**Clayton:** Is there an email address that you have that a Houston Astronomical Society member could contact you for an additional question or two?

**Aaron:** Yes, please contact me at: [aaron@clevenson.org](mailto:aaron@clevenson.org)

**Clayton:** Thanks Aaron for taking the time to share your interest and thoughts with us for our monthly HAS newsletter, the *GuideStar*. We wish you luck with all of your astronomy interests. Please come visit our society, we'd love to see you. Clear skies, always.

**Aaron:** Thanks, Clayton, for the opportunity to share my love of astronomy with your readers. I have been to your meetings a few times; they have been great. In fact I have led two of your novice sessions. I look forward to my next visit.

# 2009 Houston Astronomical Society Banquet

presents

## *Gravitational Wave Astronomy 101*

by

**David Garrison, PhD**

Faculty Chair and Associate Professor of Physics  
University of Houston-Clear Lake

**Saturday October 10, 2009**

Marriott Westchase - Richmond Room  
2900 Briarpark Drive, Houston, Texas 77042

6:30 – 7:30pm Registration & Cash Bar (for details, see <http://www.astronomyhouston.org>)  
7:45 – 8:30 Dinner  
8:30 – 9:30 Presentation by Dr. David Garrison

### ***Brief Biography***

Dr. David Garrison  
Associate Professor and Chair of Physics,  
University of Houston – Clear Lake

David Garrison began his academic career at the Massachusetts Institute of Technology where he earned his B.S. in Physics in 1997. During his course of study, he minored in Earth, Atmospheric & Planetary Science and completed a concentration in Political Science. He then moved on to The Pennsylvania State University where he completed a Ph.D. in Physics in 2002. After which, he accepted a position as a Visiting Assistant Professor at the University of Houston – Clear Lake.



After serving as a visiting faculty member for one year, he was promoted to tenure-track. During his time in academia, Dr. Garrison earned several awards from organizations including NASA, the Institute for Space Systems Operations, The Alfred P. Sloan Foundation, the Council of Graduate Schools and the Texas Educational Grid Project in addition to several internal grants and scholarships.

During his time on the faculty of UHCL, Dr. Garrison served as Chair of the Physical Science and Physics Programs and successfully developed and oversaw the approval of a revised Bachelors Degree in Physical Science, a Bachelors Degree in Physics, a Masters Degree in Physics, a Professional Masters of Physics sub-plan in Technical Management and a Collaborative Ph.D. Program in Physics. His research in computational and theoretical physics consists of work in Numerical Relativity and Cosmology.

*The banquet sponsors are HAS, Land Sea and Sky, and Bob's Knobs.*



Land Sea and Sky



**Houston Astronomical Society Annual Banquet**  
October 10, 2009

**Registration Form**



Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_ zip: \_\_\_\_\_

Number of people in your party: \_\_\_\_\_

Home Phone: \_\_\_\_\_ Work Phone: \_\_\_\_\_

Affiliation:  HAS  FBAC  NHAC  JSCAS  ASSET  UHCL  UH

Names of other persons in your party:

Name	Entree

Dinner choices (mark the number of each meal)

Beef Brisket Plate \_\_\_\_\_  
 Roasted Chicken \_\_\_\_\_  
 Vegetarian Plate \_\_\_\_\_

Dinner includes Chef's choice of  
 dessert, coffee or tea, gratuity, tax

Total number of meals: \_\_\_\_\_  
 Total Due: (# of meals x \$49.00) \_\_\_\_\_ Until Sept 23 deadline.

**Make checks payable to Houston Astronomical Society. Deadline is September 23.**

Mail this form to:  
 Houston Astronomical Society  
 Attn: Judy Dye, Banquet Chairman  
 12352 Newbrook  
 Houston TX 77072-3910  
 281-498-1703  
 jadye@rice.edu

Dress Code: Business Casual to Semi-Formal

The HAS Banquet is sponsored by the HAS, Land Sea and Sky, and by Bob's Knobs.  
 Thank you to our sponsors.



Land Sea and Sky



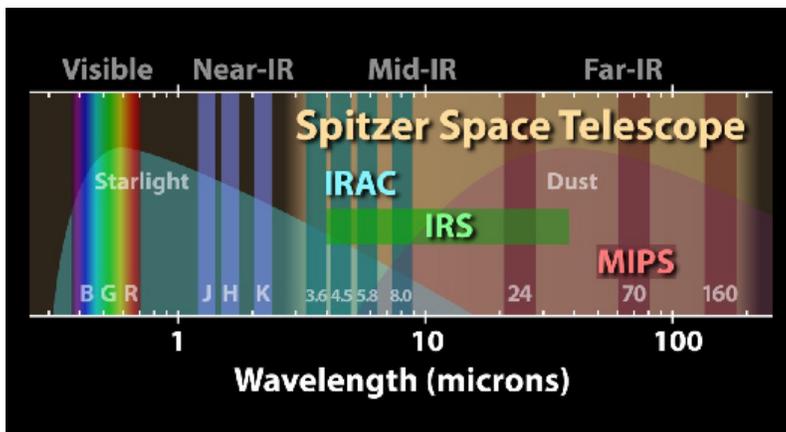
**Bob's Knobs™**  
**COLLIMATION THUMBSCREWS**

# Spitzer, the Sequel

The Spitzer Space Telescope is getting a second chance at life.

The liquid helium “lifeblood” that flows through the telescope has finally run out, bringing Spitzer’s primary mission to an end. But a new phase of this infrared telescope’s exploration of the universe is just beginning.

Even without liquid helium, which cooled the telescope to about 2 degrees above absolute zero (-271°C), Spitzer will continue to do



*The “warm mission” of the Spitzer Space Telescope will still be able to use two sensors in its Infrared Array Camera (IRAC) to continue its observations of the infrared universe.*

important research—some of which couldn’t easily be done during its primary mission. For example, scientists will use Spitzer’s “second life” to explore the rate of expansion of the universe, study variable stars, and search for near-Earth asteroids that could pose a threat to our planet.

“We always knew that a ‘warm phase’ of the mission was a possibility, but it became ever more exciting scientifically as we started to plan for it seriously,” says JPL’s Michael Werner, Project Scientist for Spitzer. “Spitzer is just going on and on like the Energizer bunny.”

Launched in August 2003 as the last of NASA’s four Great Observatories, Spitzer specializes in observing infrared light, which is invisible to normal, optical telescopes.

That gives Spitzer the power to see relatively dark, cool objects such as planet-forming discs or nearby asteroids. These objects are too cold to emit light at visible wavelengths, but they’re still warm enough to emit infrared light.

In fact, all warm objects “glow” with infrared light—even telescopes. That’s why Spitzer had to be cooled with liquid helium to

such a low temperature. Otherwise, it would be blinded by its own infrared glow.

As the helium expires, Spitzer will warm to about 30 degrees above absolute zero (-243°C). At that temperature, the telescope will begin emitting long-wavelength infrared light, but two of its short-wavelength sensors will still work perfectly.



And with more telescope time available for the remaining sensors, mission managers can more easily schedule new research proposals designed for those sensors. For example, scientists have recently realized how to use infrared observations to improve our measurements of the rate of expansion of the universe. And interest in tracking near-Earth objects has grown in recent years—a task for which Spitzer is well suited.

“Science has progressed, and people always have new ideas,” Werner says. In its second life, Spitzer will help turn those ideas into new discoveries.

For kids, The Space Place Web site has a fun typing game using Spitzer and infrared astronomy words. Check it out at [spaceplace.nasa.gov/en/kids/spitzer/signs](http://spaceplace.nasa.gov/en/kids/spitzer/signs).

*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*

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# *Gravataional Wave Astronomy 101*

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*Abstract of the 2009 HAS Banquet Presentation*

*By David Garrison, PhD  
University of Houston Clear Lake, Physics Department*

In this talk I introduce the field of gravitational wave astronomy. I do this from the point of view of someone who is using astronomy to answer several fundamental but challenging questions about our universe. How did the universe begin? How do we know what we think we know about the history of the universe? How can we test our theories? To answer these questions, I show how we use conventional astronomy, Einstein's General Theory of Relativity, lots of large machines and a few supercomputers. My goal is to make this information accessible to a general audience so those without a background in physics or astronomy can also understand this talk.

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# Observatory Corner



*By Bob Rogers, Observatory Chairman*

Hello everyone.

The HAS annual picnic was held on September 19<sup>th</sup> with around 80 members and guest attending. Mike Edstrom, Greg Barolak and Don Selle put on the picnic with brisket, beans and slaw and brownies being served. Everyone ate well considering that there was very little brisket left. There were a lot of telescopes set up on the observing field, but after sunset the skies clouded up. People were able to see a few objects such as Jupiter and M13 and a few others before the clouds moved in. I would like to thank Mike Edstrom, Greg Barolak and Don Selle for putting on the picnic. Aslo, I would like to thank Ed Fraini, Dale Morningstar and Lee and Ginger Gibson for coming out Friday and Saturday morning to do the mowing and weed eating and getting the Observing site in shape for the picnic. It was great to see Steve and Amelia Goldberg back at the site again. One last note here, the rain curse may be over. The reason I say that is because Allen and Peggy Gilchrist were present and there was no rain.



Also, I would like to remind everyone that the following weekend, October the 23<sup>rd</sup> is the Astronomy Day Regional meeting and the 24<sup>th</sup> is Astronomy Day at the George Observatory. Folks, we can use your help as volunteers at Astronomy Day. This is our once a year event that reaches out to the public to teach them about Astronomy. Every year, all the clubs that are involved usually end up with new members from this event. So if you would like to come out and help and have a good time doing it, please contact Cynthia Gustava at [cynm31@att.net](mailto:cynm31@att.net) or go to [www.astronomyday.org](http://www.astronomyday.org) to volunteer. Your help would be very much appreciated.

If you have a Randalls card, and have not done so, please have it coded for the Houston Astronomical Society. Our number is #6618. The Society gets 1 percent of the gross sales that members spend at Randalls. Randalls totals up the amount spent each quarter and will send us a check if the amount goes over \$2,500.00, otherwise the total roles over to the next quarter or zeros out at the end of the calendar year. So please link your Randalls card to the Houston Astronomical Society so that the society can benefit from this Randalls program. Our number is #6618. This is very easy to do, just go to the Courtesy Booth and tell the person there what you want to do.



If you have any suggestions or thoughts for the site, let me know.

***Thanks,***

***Bob Rogers  
Observatory Chairman  
281-460-1573  
siteworkerbob@hotmail.com***

# 51 Pegasi - First Exoplanet Found Here

by Bill Pellerin, GuideStar Editor

**Object:** 51 Pegasi  
**Class:** Star  
**Magnitude:** 5.45  
**R.A.:** 22 h, 57 m, 28 s  
**Dec:** 20 degrees, 46 minutes, 08 sec  
**Distance:** 50.1 ly  
**Constellation:** Pegasus  
**Size/Spectral:** G5V  
**Optics needed:** Naked eye/binoculars

## Why this object is interesting.

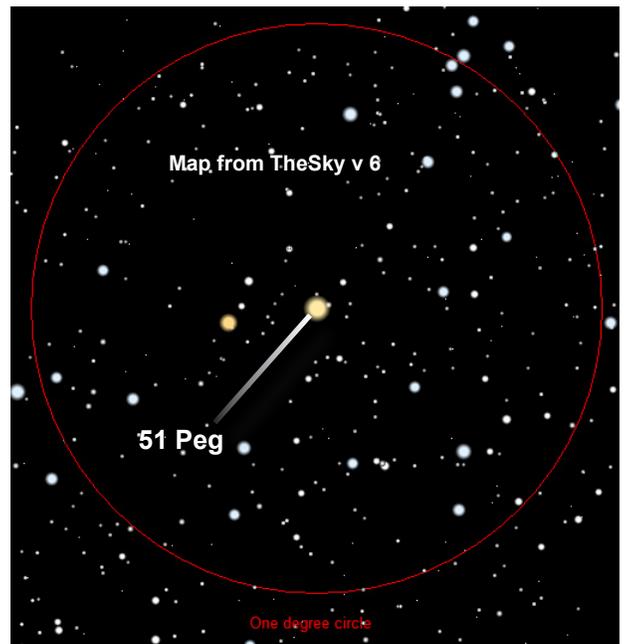
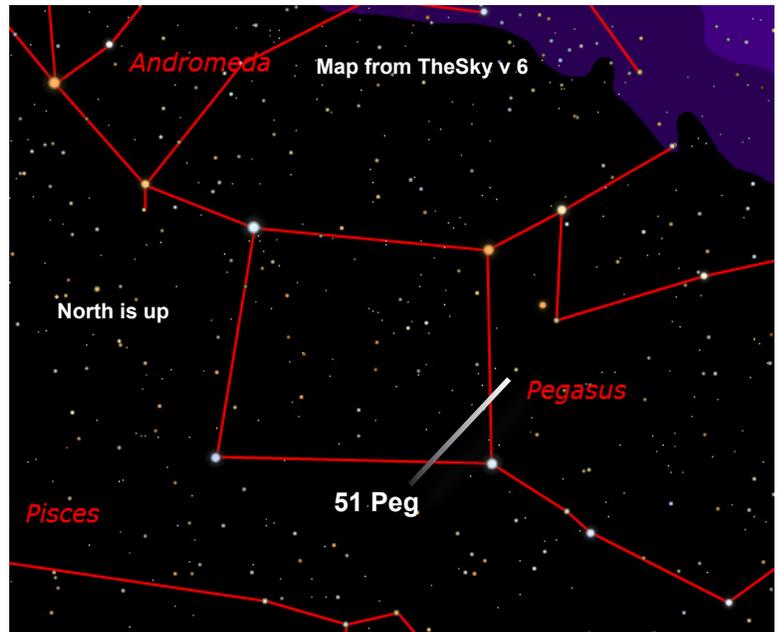
When you look at this star you'll be looking at the first star that was identified to have an orbiting planet. In October 1995 Michel Mayor and Didier Queloz announced the first observation of an extra-solar planet (i.e. not in our solar system) orbiting a Sun-like star. The identification was made using the radial velocity method. This method measures perturbations in the star's position caused by a heavy object orbiting nearby. Careful measurements of the spectrum of the star reveals small shifts in the spectral lines, and it is these shifts that are associated with the movement of the star.

So, what do we have, here? We have a planet that is about 60% of the mass of Jupiter, located at a distance from its star of 4.7 million miles (.05 AU). The orbital period is 4.2 days. This configuration is unexpected. Our solar system has small, rocky planets (Mercury, Venus, Earth, Mars) near our star, the Sun, and large gas giants (Jupiter, Saturn, Uranus, Neptune) farther out. The gas giants are essentially hydrogen gas balls. If these planets were near the Sun, they couldn't form as gas balls. So, we think that the planet orbiting nearby to 51 Peg must have formed much farther out and spiraled into a nearer orbit. If true, we should expect the planet to be consumed by the star in the long run. So we're seeing the system at an opportune time.

Some stars have names, and other designations (it's one of the confusing aspects of astronomy). Likewise, astronomers feel compelled to give names to the planets that orbit these stars. So, the first planet, officially called 51 Pegasi b ('a' corresponds to the star itself). There's also a common name for the planet -- Bellerophon. Bellerophon was a Greek mythological hero who rode the winged horse Pegasus on his quest to slay a monster.

Since the discovery of the planet around 51 Peg many more planets (374 in the Extrasolar Planets Encyclopedia) have been found using both the 'wobble' method and a 'transit' method (the star dims very slightly as the planet moves in front of it).

Want to see the catalog of exo-planets? Look here:  
<http://exoplanet.eu/>



Location of 51 Peg. The circle is one degree on the sky. North is up.

### General Membership Meeting

The Houston Astronomical Society holds its regular monthly General Membership Meeting on the first Friday of each month, unless rescheduled due to a holiday. Meetings are in Room 117 of the Science and Research Building at the University of Houston. A Novice Presentation begins at 7:00 p.m.. The short business meeting and featured speaker are scheduled at 8:00 p.m. Also typically included are Committee Reports, Special Interest Group Reports, current activity announcements, hardware reviews, an astrophotography slide show by members and other items of interest. Parking is NOW across from Entrance 14, by the stadium.

### Board of Directors Meeting

The Board of Directors Meeting is held on dates scheduled by the board at 7:00 p.m. at the Houston Chronicle office, downtown. Information provided to GuideStar will be published. The meetings are open to all members of the Society in good standing. Attendance is encouraged.

### GuideStar Information

The H.A.S. *GuideStar* is published monthly by the Houston Astronomical Society. All opinions expressed herein are those of the contributor and not necessarily of Houston Astronomical Society. The monthly Meeting Notice is included herein. *GuideStar* is available on the HAS web site to all members of H.A.S., and to persons interested in the organization's activities. Contributions to *GuideStar* by members are encouraged. Electronic submission is helpful. Submit the article in text, MS-Word format via email BillPellerin@sbcglobal.net. Copy must be received by the 15th of the month for inclusion in the issue to be available near the end of the same month. Or, bring copy to the General Membership Meeting and give it to the Editor, or phone to make special arrangements.

Editing & Production: Bill Pellerin, 713-880-8061; FAX: 713-880-8850;  
Email: BillPellerin@sbcglobal.net

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## *Houston Astronomical Society*

### Meeting on Friday, October 2

**7:00 Novice & Site Orientation**

**8:00 General Meeting**

### University of Houston

#### Directions to meeting:

from I-45 going south (from downtown)

- exit at Cullen Boulevard
- turn right on Cullen
- turn left into UH entrance 14
- Science and Research is on the left

From I-45 going north (from NASA/Galveston)

- exit at Cullen Boulevard
- turn left on Cullen to UH entrance 14

#### Parking:

There is Free Parking, **BUT DO NOT PARK IN ANY RESERVED PARKING SPACES AT ANY TIME.**

U of H parking enforcement will ticket your vehicle.

## Houston Astronomical Society

P.O. Box 20332 • Houston, TX 77225-0332



The Houston Astronomical Society welcomes you to our organization. The HAS is a group of dedicated amateur astronomers, most of whom are observers, but some are armchair astronomers. The benefits of membership are:

- Access to our 18 acre observing site west of Houston -- a great place to observe the universe!
- A telescope loaner program -- borrow a HAS telescope and try observing for yourself!
- A monthly novice meeting, site orientation meeting, and general meeting with speakers of interest.
- Opportunities to participate in programs that promote astronomy to the general public (such as Star Parties at schools)
- A yearly banquet with a special guest
- A yearly all-clubs meeting for Houston area organizations
- Meet other amateurs and share experiences, learn techniques, and swap stories

***You're invited to attend our next meeting.  
You'll have a great time.***