

# The Spectrogram

Newsletter for the Society of Telescopes, Astronomy, and Radio

December 2004

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## December's Meeting

The next meeting of S\*T\*A\*R will be Thursday, December 2nd.

Our guest speaker will be Ken Legal, our own eclipse chaser. Ken will present Eclipse!, a solar eclipse primer with video from his journeys to see Bailey's Beads and other delights.

Scope 'n Tell will be Mike Sullivan's Hardin 12" Dob.

The meeting will begin promptly at 8:00pm at the King of Kings Lutheran Church, 250 Harmony Road, Middletown.

## Thanks to Contributors!

Thanks to all this month's contributors to the *Spectrogram* (Steve Walters, Ernie Rossi, Greg Cantrell, Steve Fedor, Doug Berger, Greg Crinklaw). If you'd like to follow in their footsteps, **the deadline for the next edition of the *Spectrogram* is Friday December 31st.** Please email any contributions to [gwarnes1@comcast.net](mailto:gwarnes1@comcast.net).

## Calendar

### September 2, 2004

History of the Telescopes  
Ernie Rossi

### October 7, 2004

Constellation Myths  
Dr Hank Bartol, Newark  
Academy

### November 4, 2004

X-Raying the Hearts of  
Supernova Remnants  
Jeremy Carlo, Columbia  
University

### December 2, 2004

Eclipse!  
Ken Legal

### January 6, 2005

Imaging by the S\*T\*A\*Rs

### February 3, 2005

ATM Group Presentation

### March 3, 2005

### April 7, 2005

### May 5, 2005

### June 2, 2005

AGM

## President's Corner

By Steve Walters

Thanksgiving is now behind us. Besides eating a lot of turkey and getting fat, I hope you got out and observed a little. The weather was not very cooperative but there were a few useable nights. Hopefully you were able to get some observing done, even if it was just naked eye views during a walk.

If you haven't paid your dues yet, please get them in. Your S\*T\*A\*R membership evaporates on 12/31/2004, don't let this happen to you! We have a great club, get involved, get out and observe, come to the ATM or Imaging groups, continue to advance your knowledge of astronomy. As of 11/28, we have 47 paid members. To cover our expenses, we need 57 members. There are 20 current members who have not yet paid their dues. So if you're one of them, please send us your check or see Paul Nadoly at the December meeting. Thanks!

Our last meeting featured a really excellent talk by Jeremy Carlo. He gave a very informative talk, it was easy to understand and quite entertaining. Jeremy is working on his PhD in Astronomy at Columbia, I know we all wish him good luck in his work!

During November, I attended the Advanced Imaging Conference in San Jose, CA. It was a really great event, full of very useful and well-delivered talks. Some of the "really big" names in amateur imaging were present including Russ Croman, Ron Wodaski, John Smith, Don Goldman and many others. SBIG's Michael Barber gave a talk on the future of CCD cameras and the Bisque Brothers (of Software Bisque) spoke about the enhancements they are building into their suite of programs (The Sky6, CCDSoft, etc) for imagers. For me, it was such a fantastic event, I learned a lot of things, got some exciting ideas and picked up some new PhotoShop tricks. It was well worth the trip, I'm already planning to return next year!

Here's a reminder of some of the club's activities.

- ❑ First on the list is our highly successful ATM-SIG (Amateur Telescope Making - Special Interest Group) which has helped close to a dozen people build mirrors/telescopes. No project is too small or too large for these folks. And if you really want to know, they'll test your mirror for you. But be prepared for the answer! Mike Lindner and Gordon Waite are the ATM-SIG contacts. They meet bimonthly at Gordon's workshop.
- ❑ Dee Strauss is the contact for our Outreach Group. This group helps S\*T\*A\*R maintain its membership by distributing flyers in libraries, setting up tables at county events and generally trying to make S\*T\*A\*R a

household name. Dee can always use some help in copying and distributing the flyers so please see her if you're willing to help with this activity.

- ❑ Our Observing SIG plans observing outings such as the upcoming Messier Marathon and other special events. Contact Tim Tierney for more info on this group.
- ❑ We now have a Beginner's Group so if you're getting started, drop in to the meeting an hour early (at 7 pm) Besides helping solve problems and explain things, this group is also planning observing outings. Nancy McGuire is the contact for this group.
- ❑ The Imaging SIG meets monthly to discuss imaging topics including processing tips, cameras, computers, telescopes – anything needed to acquire and process images. Steve Walters convenes this group which meets monthly at his home.

Don't forget to check our discussion board. If you haven't been there, you've missed a treat. Simply go to [www.StarAstronomy.org](http://www.StarAstronomy.org) and click on "Discussion Board" to find your way to a host of information, plans and reports.

Clear Skies!

Steve...

## November Meeting Minutes

By Steve Fedor

The November 2004 meeting of S\*T\*A\*R Astronomy kicked off at approximately 8:07 pm on Thursday 11/4. There were about 23 members and 1 new-member in attendance. President Steve Walters began by welcoming the first time attendee, Lewis.

It was announced that no 50/50 would be held due to the unavailability of the tickets. Steve W. announced that letters of permission were available for the observing sites. It was announced that Ken Legal will be the speaker for the December meeting. The topic will be "Solar Eclipse Primer." Copies of the High Point Scientific catalog were distributed.

Our guest speaker was Jeremy Carlo, a PhD student of Physics at Columbia University. Jeremy gave a fascinating talk on 'X-Raying the Hearts of Supernova Remnants: The Search for Young Pulsars'. His research involves the study of supernova remnants and neutron stars, particularly their x-ray emission, and the search for young pulsars. Jeremy's captivating talk ended with an especially in-depth question and answer session. The talk ended at approximately 9:20.

The various Special Interests Groups (S.I.G.'s) gave an update of recent activities.

ATM- Gordon Waite announced the ATM group would meet on Monday 11/8 and that all are invited.

Observing- Tim Tierney reminded everyone there would be a public star party at Allaire State park on Sat. 11/6 and that it had received some mention in the Asbury Park Press.

Imaging- Steve Walters announced that the imaging SIG had met two weeks earlier with Rick, Nick, Randy, Mike M. Steve also announced the next meeting would be held on 11/18.

Beginners – Nancy announced that the Beginners SIG will start meeting and observing soon.

Outreach – Dee announced that Gavin and her had created new library flyers and will attempt to get them to all the star parties held for schools. Gavin made a request for more Spectrogram articles.

Jordan Feder began his “Objects of the Month.” Jordan presented charts for OC 6939 and GX 6946. He noted there is a super nova in 6946 which nicely went along with Jeremy Carlos’s presentation.

The meeting was adjourned at 10:09. Due to cloudy weather there was no observing afterwards.

## Ernie’s Telescope Corner

*By Ernie Rossi*

Several years ago when a member of one of the astronomy clubs I belong to wanted to sell an almost new 20" Obsession for personal reasons, I decided to buy it. What may seem strange is that I already owned a 25" Obsession and an 18" Tectron telescopes. I had thought about keeping one scope at my primary home, and the other scope at my dark sky house located in the western part of the Catskill Mountains. The Tectron scope is much lighter and breaks down into a much smaller package and that would be my traveling scope to star parties, and going on vacation when traveling by car. The 20" Obsession has a focal ratio of 100" and requires a 6 to 8 foot ladder when at zenith depending on your height and how far you’re willing to climb the ladder. The scope has a 20" Galaxy mirror, DX1 two speed focuser, light shroud, telrad, wheel barrow handles on 10" pneumatic tires to move it, sky commander digital setting circles, dew heater for the secondary and telrad, and a fan behind the mirror for temperature equalization. Twenty years ago a telescope of this aperture could only be found in professional observatories, but manufacturers like Obsession with Dobsonian style mounts manufacturing advancements in optics and electronics can now deliver these high quality telescopes to amateurs at affordable prices.

This is a big scope weighing around 150 pounds and you need a large SUV, mini van, regular van or small truck to transport it, plus ramps or two strong guys to lift it onto the vehicle. This is a serious telescope capable of around 16 magnitude in a dark sky. On a good night the central star in M57 the ring nebula is visible, and just to name a few of the brighter globular clusters like M13, M92, M22, M3, M5, M4 bright pinpoint stars fill past the field of view with so many intricate patterns. M27 the Dumbbell nebula without a filter is such an awesome sight filling the field of view with many stars radiating through the nebulosity. This is a great scope for galaxy clusters, sometimes more than 8 in the same field of view. All 5 galaxies can be seen in Stephan's Quintet. Just about any object looks amazing through this telescope.

At public star parties many of the viewers are amazed at all the detail in just about any object they may look at. Here is a scope that shows you as much or even more detail of photographs taken with smaller telescopes. Because of the high quality Galaxy premium mirror, detail of the planets under excellent conditions can rival or beat smaller premium refractors. On a steady night Saturn disk exhibits many color variations and the same for Saturn's ring system. The brownish hue of the Crepe ring stands out. Cassini division large and black can be easily seen around the entire planet, and the Encke gap is not a difficult to spot. Because of its great light gathering power as many as 8 of Saturn's moons are visible.

I recently looked at the Orion nebula using binoviewers with this telescope and the sight was so awesome, thick clouds in 3D extending many fields of view with 6 stars in the trapezium very easy to see, plus colors of green and hints of red. Many more stars could be seen popping out through the gas cloud, the incredible sight just takes your breathe away. Ed Ting lecturer, writer, and avid amateur astronomer who has a column (<http://www.scopereview.com/>) on testing and comparing all types of telescopes raved about the optical performance and overall quality of this telescope.

Setup time for this scope is around 15-20 minutes, and it's a little faster taking it apart to move or put on a van. Everyone who sees this telescope marvels at the size and can't believe how easy it moves and how well constructed it is. This is the telescope that all others try duplicating in quality, construction, and design. I usually keep this telescope setup on a dolly in my garage so I can easily roll it out onto my driveway or lawn to do some quick observing since my primary home is in an area of moderately dark skies, and my garage ceiling is 11 feet high. This telescope is a pleasure to look through and handles so easy one person can easily move it in all directions. If you ever decide to buy an Obsession your money will be well spent, this telescope is built to last and has one of the highest resale values of any telescope around.

# My First Year – Part 1

By Doug Berger

This article is the first of two installments describing my first year of "serious" night sky observing. Here I will discuss how I finally managed to get to this point, my preparation and strategies for observing, what I liked the most during my first year of viewing, and what 2005 may be like for me. For the second installment, hopefully to be available for next month's newsletter, I will describe some of my favorite heavenly bodies, with a slant towards some not-so-popular objects (e.g., non-Messier objects).

As mentioned above, this has been my first year of serious observing of the night sky. Since my childhood, I have been enthusiastic about science in general. I had received a 60mm Monolux refractor (department store quality) as a gift when I was 9 years old. Although my use of the scope was sporadic, and I unfortunately did not receive encouragement nor direction from others, I did manage to find out that the Hayden Planetarium had a recorded message specifying the locations of the visible planets, so I was able to view Jupiter and Saturn on a few occasions (as well as can be expected with such a scope in the big city). Time passed, and although I continued to be interested in Astronomy, I never plunged head first, including a false start as a S\*T\*A\*R club member in 1997.

Fast forward to the late summer of 2003. I finally decided to do what it would take to get into this hobby. Maybe it was a suggestion from a friend at work, maybe it was the August 2003 Mars opposition. First and foremost, I allocated the necessary time. Most endeavors require a time commitment, especially for the up-front learning curve. I renewed my defunct subscription to Sky and Telescope, bought Phil Harrington's "StarWare" guide on telescopes and accessories, and rejoined S\*T\*A\*R. Due to the efforts of club members, along with the existence of the club's message board, going out observing with other club members was facilitated. I soon thereafter purchased binoculars and a planisphere to become more familiar with the constellations. Early in 2004, Gavin Warnes was kind enough to lend me his 6" Orion dobsonian reflector while waiting for my new 10" Orion dobsonian to arrive. From February to this point (November 2004), I have used the 10" Orion and logged hundreds of deep sky objects. This has been an enjoyable year of observing. I'd like to describe some of the tools I have used and strategies I have adopted that have made this a successful observing year.

From a preparation perspective, I was well aware that planning prior to an observing session would be critical, especially for a new person who was unfamiliar with the sky. Besides not purchasing a scope of even modest quality, I feel that many casual users abandon the hobby because they don't find out what's out there to observe and where to

locate them. Thus, per club members' suggestions, I purchased the two volumes of Kepple and Sanner's "The Night Sky Observer's Guide". These volumes give a good description, organized by constellation, of what is viewable for different sized scopes. I also decided to support this information with tailor-made, pre-printed star charts to assist me during each observing session (as opposed to a more general star chart). I started using the SkyTools observing program for this purpose. Finally, I decided to log all my observations to help me remember all the objects I view (and these will come in handy for next month's article). I use a voice recorder out in the field to record my observations and then transcribe them to written logs using the same SkyTools program.

My overall strategy for observing this year was to choose objects on a constellation-by-constellation basis. I prepared observing lists in advance using the Kepple and Sanner volumes and SkyTools. I included a wide variety of deep sky objects that met the visibility criteria of my scope's size. Besides seeing many objects, which satiated a 30 year hunger, this strategy has given me a first-hand means of learning the constellations. Along the way, I have viewed a number of the most popular objects multiple times, but probably not as frequently as others. I have enjoyed observing in this fashion, but obviously there are other observing strategies that can be implemented as well. What has worked well for me, what have I enjoyed the most, and where am I going from here? First, preparation before observing sessions has been critical, as my thirst to view many new objects for each observing session forces this. Of course, preparation is of no value unless time is allocated to actually get outside and view. I had to learn to get over my distaste for staying out in cold weather, which thus forced me to learn to dress warmly. Fortunately, I don't mind staying out late, as I require very little sleep (and my work does not require early arrival).

In terms of the objects I have viewed, galaxies hold my fascination the most. Even though the vast majority that I have viewed have been nothing more than faint smudges in the eyepiece, there's something about their distances and true sizes that leaves me in awe every time I view one. Of course, I have enjoyed viewing all the other deep sky objects, as well as the views of most of the planets (including viewing Mercury, Uranus, and Neptune for the first time). Enhancing the views has been going out to dark sky sites whenever possible. I try to get down to Coyle Field in Southern New Jersey whenever possible and jump at Ernie's gracious invitations to his Catskill retreat (although the weather has held up for only one such trip). I also made my first excursion to Cherry Springs State Park in Pennsylvania. Both Ernie's place and Cherry Springs are bona fide dark sky sites in the Northeast.

As for 2005, after I have viewed objects in a full circuit of constellations, I'd like to focus more time on the popular objects (such as Messier objects), from the perspectives of

knowing these objects better by designation and capturing to memory where they are located, so that I'll be less reliant on the star charts. I expect that this will be a long term process; let it take time!

Finally, I've been considering moving up to a larger telescope; aperture fever has hit. A little more detail when viewing the closer galaxies would be welcome. I guess I'd be able to view more distant galaxy smudges as well. I'm looking forward to 2005 and hoping for more clear nights than we had in 2004.

## Galactic Surprise

By Patrick L. Barry and Dr. Tony Phillips

Open an old astronomy textbook. The basic sketch you'll find there of galaxy formation is fairly simple: a vast cloud of diffuse hydrogen and helium gas condenses under gravity, and dense spots in the cloud collapse to form stars. Voila! A galaxy.

But real galaxies are much more complex than that. A galaxy is a swirling "soup" of billions of stars and roaming black holes, scattered clouds of gas and dust, random flashes of star birth and exploding supernovas, and an unseen and mysterious substance called "dark matter." Over time, all these ingredients mix and interact—pulling and compressing and colliding—and somehow that interplay leads to the galaxies we see today. No wonder it's such a hard problem to solve!

Just over one year into its three-year mission, GALEX is already shedding some new light on the problem.

"Some of the discoveries GALEX has made will change our understanding of how galaxies develop and when, where, and why stars form in galaxies," says Peter Friedman, a researcher at Caltech and Project Scientist for GALEX.

This small space telescope, called the Galaxy Evolution Explorer (GALEX for short), makes its discoveries by taking pictures of millions of galaxies scattered over the whole sky. Some of these galaxies are close by (at least by astronomical standards of "close"), while others are as much as 10 billion light-years away. Because light takes time to travel through space, we see these distant galaxies as they appeared billions of years ago. Comparing young galaxies from the distant past with older, modern galaxies will teach scientists about how galaxies change over time.

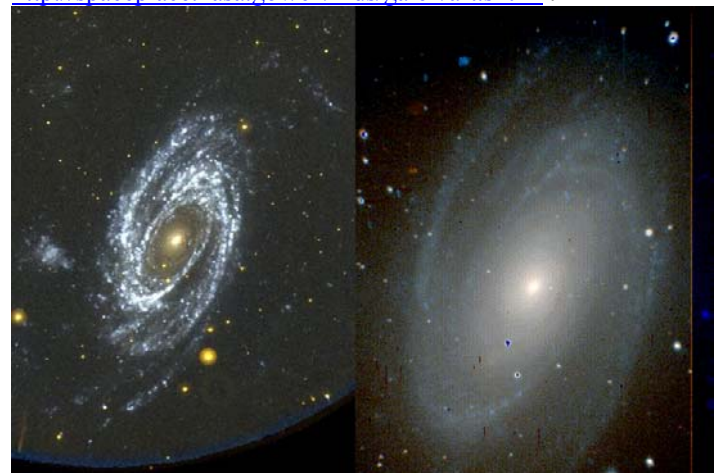
Looking at these pictures, scientists were surprised to find many newborn stars in the outer parts of old, mature galaxies. Scientists had assumed that as a galaxy ages, the clouds of gas needed to form new stars in these outer reaches either got used up or blown away. Finding so many new stars in these regions of old galaxies (such as Centaurus

A, Messier 101, and Messier 81) shows that, apparently, they were wrong.

Friedman says that astronomers don't know yet how to explain these new findings. Rethinking and improving theories to explain unexpected discoveries has always been the way science makes progress—and GALEX is certainly making progress.

One thing is certain: It's time to re-write some old textbooks.

For more information, see <http://www.galex.caltech.edu/>. Kids can do a galaxy art project and learn more about galaxies and GALEX at <http://spaceplace.nasa.gov/en/kids/galex/art.shtml>.



*Caption:*  
M81 is 10 million light years away. The image on the left was made from GALEX data and shows UV light from hot, new stars. These star forming regions are not detectable in the visible light image on the right (McGraw-Hill Observatory, Kitt Peak, Arizona, Greg Bothum, Univ. of Oregon.)

## Messier Objects - December

By Greg Cantrell

M36, 37 & 38 (NGC 1960, 2099 & 1912) – These wonderful open clusters, found in Auriga, are easily visible to the naked eye from a dark location. Binoculars reveal a line of fuzzy patches, while low power telescope views resolve rich open clusters.

M41 (NGC 2287) – This 4.5 magnitude open cluster in Canis Major is visible as a hazy patch near the bright star Sirius. Best viewed through binoculars or a telescope at low power.

M42 & 43 (NGC 1976 & 1982) – Known as the great Orion Nebula, M42 is easily visible to the naked eye in the sword of Orion. M43 is a small patch of nebulosity near M42 that requires a telescope to observe.

M78 (NGC 2068) – A small emission nebula in Orion, this 8.0 magnitude object is a difficult binocular object and is best viewed with a telescope.

## Moon Phases



Nov 12   Nov 19   Nov 26   Dec 5



Dec 12   Dec 18   Dec 26   Jan 3

## Are you a S\*T\*A\*R Member?

S\*T\*A\*R is a member of United Astronomy Clubs of New Jersey (UACNJ) and the International Dark Sky Association (IDA). Meetings are the first Thursday of each month, except July and August, at 8:00 PM at the King of Kings Lutheran Church, 250 Harmony Rd. in Middletown . Meeting generally consist of lectures and discussion by members or guest speakers on a variety of interesting astronomical topics.

Memberships: ( ) Individual...\$25  
( ) Family...\$35 ( ) Institutional \$25

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Make checks payable to: STAR Astronomy Society, Inc. and mail to P.O. Box 863, Red Bank, NJ 07701

## In the Eyepiece

If you are not worn out by all of December's Messier objects, here is a list of more objects for this month. This is reproduced from [www.skyhound.com](http://www.skyhound.com) with the kind permission of its creator and author of SkyTools Greg Crinklaw.

Object(s)	Class	Con	RA	Dec	Mag
<a href="#">NGC 1501</a>	Planetary Nebula	Camelopardus	04h06m59.4s	+60°55'14"	13.3
<a href="#">Cleopatra's Eye</a>	Planetary Nebula	Eridanus	04h14m15.8s	-12°44'21"	9.6
<a href="#">The California Nebula</a>	Diffuse Nebula	Perseus	04h03m12.0s	+36°22'00"	5.0
<a href="#">NGC 1664</a>	Open Cluster	Auriga	04h51m04.4s	+43°42'04"	7.2
<a href="#">MSH 04-12</a>	Quasar	Eridanus	04h07m48.4s	-12°11'36"	14.8
<a href="#">NGC 1360</a>	Planetary Nebula	Fornax	03h33m14.6s	-25°52'18"	9.6
<a href="#">Crystal Ball</a>	Planetary Nebula	Taurus	04h09m17.0s	+30°46'33"	10.0
<a href="#">Palomar 2</a>	Globular Cluster	Auriga	04h46m06.0s	+31°22'54"	13.0
<a href="#">K 2-1</a>	Planetary Nebula	Auriga	05h07m07.1s	+30°49'18"	13.8
<a href="#">NGC 1624</a>	Open Cluster	Perseus	04h40m25.4s	+50°26'49"	11.8

Pictures from Allaire State Park Star Party – November 6th

