



ASTROFILES

Auburn Astronomical Society Newsletter

February 2016

John Wingard - Secretary/Treasurer - Auburn Astronomical Society - jwin2485@bellsouth.net

The AAS would like to welcome our newest member, William Sprankle from Wetumpka, AL. Welcome William!

The next meeting of the AAS will be Friday, March 4, 2016. We will meet in Room 215 of Davis Hall (Aerospace Engineering) on the AU campus. The meeting starts at 7:45 PM CT. Specific directions to the meeting location can be found on the AAS web page:

<http://www.auburnastro.org>

Our program for this meeting will be a presentation by our own Jim Lauridson. Jim has been involved in a project with a colleague at Auburn University where they have been doing spectroscopic studies of planetary nebula Abell 30, located in the constellation of Cancer. This should be a very interesting program! There's some additional information on this nebula later in the newsletter.

Important AAS Dues Reminder...

For those that haven't renewed their AAS dues for 2016, there's still time. Full dues for current members are \$20. If you are joining as a new member, the dues are prorated based on the month in which you join. Consult the dues table on the application form included in this newsletter.

Upcoming AAS Activities

The AAS has a number of star gazes lined up in the next couple of months. The first one is a star gaze at Kiesel Park in Auburn, AL on Saturday, March 5, 2016. This event is sponsored by the Kreher Preserve and Nature Center. It will begin at 7:00 PM. We currently have a number of

AAS members that have indicated that they can come and help out, but we can always use more. Of course, it will be cancelled in the event of inclement weather.

The next event is scheduled for Thursday evening, March 31, 2016 at the Alabama Nature Center in the Montgomery/Prattville, AL area. More details to come.

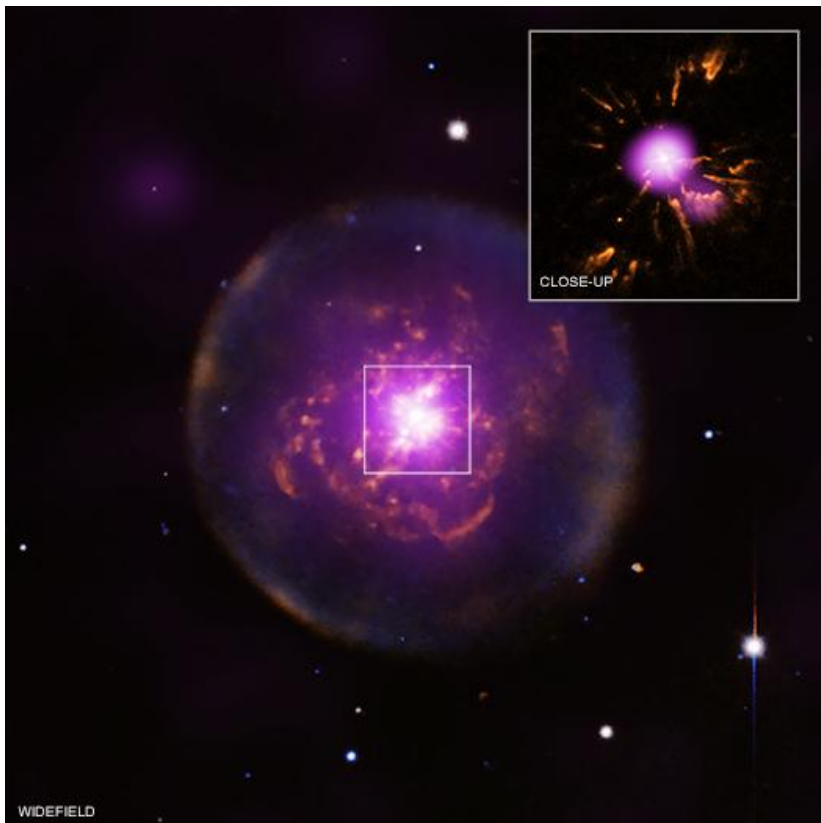
Another tentative star gaze is scheduled for Saturday, April 9, 2016 for a home-schooled group in Montgomery. Additional details to come as soon as they are known.

We are also working out details for a star gaze for a school group on Maxwell AFB in Montgomery sometime during the week of April 11-14, 2016. At the present time, we don't know which night it will be held. If we finalize the arrangements, an e-mail notice will be sent out in advance with a request for volunteers to come and bring their scopes.

And finally, we are working on another star gaze with the group at the Tuskegee National Forest just southwest of Auburn on either April 15 or 16, 2016. This will essentially be a repeat of the one that we did last October at this location. More details to come later.

Getting back to the topic of our upcoming March 4 meeting, here is some additional information about the planetary nebula Abell 30. This information is courtesy of NASA.

The image below is a composite of both optical and X-Ray data showing the planetary nebula Abell 30 in Cancer.



These images of the planetary nebula Abell 30, (a.k.a. A30), show one of the clearest views ever obtained of a special phase of evolution for these objects. The inset image on the right is a close-up view of A30 showing X-ray data from NASA's Chandra X-ray Observatory in purple and Hubble Space Telescope (HST) data showing optical emission from oxygen ions in orange. On the left is a larger view showing optical and X-ray data from the Kitt Peak National Observatory and ESA's XMM-Newton, respectively. In this image the optical data show emission from oxygen (orange) and hydrogen (green and blue), and X-ray emission is colored purple.

After having steadily produced energy for several billion years through the nuclear fusion of hydrogen into helium in its central region, or core, the star undergoes a series of energy crises related to the depletion of hydrogen and subsequent contraction of the core. These crises culminate in the star expanding a hundred-fold to become a red giant.

Eventually the outer envelope of the red giant is ejected and moves away from the star at a relatively sedate speed of less than 100,000 miles per hour. The star meanwhile is transformed from a cool giant into a hot, compact star that produces intense ultraviolet (UV) radiation and a fast wind of particles moving at about 6 million miles per hour. The interaction of the UV radiation and the fast wind with the ejected red giant envelope creates the planetary nebula, shown by the large spherical shell in the bigger image.

In rare cases, nuclear fusion reactions in the region surrounding the star's core heat the outer envelope of the star so much that it temporarily becomes a red giant again. The sequence of events - envelope ejection followed by a fast stellar wind - is repeated on a much faster scale than before, and a small-scale planetary nebula is created inside the original one. In a sense, the planetary nebula is reborn.

On the evening of January 31, 2016, we had some nice clear skies and moderate temperatures here at my location in Columbus, GA, so I decided to set up my scope out on the patio and try a little "piggyback" photography of the area around the Orion nebula (M42). By piggyback I mean mounting my Canon 600D camera on top of my Questar 3.5 scope and letting the scope drive track the star movements while making some long exposures using the camera lens alone. I live in an orange-red light pollution zone, so I don't normally see much here in the way of stars, but with some extended multiple exposures coupled with special "stacking" software, the results were not too bad considering my location. Since these shots were taken, I have acquired a clip-in LP filter for my Canon that should help even more the next time I try this. The topmost photo below shows a cropped section of the central part of Orion showing the three belt stars and below that the M42 nebula. The bottom photo shows how I had the camera and scope configured for the shots. Ten 30-second exposures were combined to produce the final image.

If anyone has any photos that they have taken, whether it be of stars, planets, or equipment, send them to me and I'll be sure to put them in a future newsletter. Just provide a basic description of what it is and how you took it.

That's about it for this month. Please mark your calendar for our next meeting on Friday, March 4, 2016. Also, if you are on Facebook, check out our page. Just search for Auburn Astronomical Society and you should find us. We post photos, meeting and other activity notices, etc. It's one way that we communicate with our members and the public. Also, check our web page at <http://www.auburnastro.org>



Auburn Astronomical Society Membership Application Form

Name:

Address:

City: _____ State: _____ Zip: _____

Phone: _____ Date of Application* ____/____/____

E-mail:

Telescope(s):

Area(s) of special interest:

Enclose: \$20.00 for regular membership, payable in January. *Full-Time* student membership is half the Regular rate.

* If you're joining after January, refer to the Prorated Dues Table below:

Jan \$20.00	Feb \$18.33	Mar \$16.66	Apr \$14.99	May \$13.33	Jun \$11.66
Jul \$10.00	Aug \$8.33	Sep \$6.66	Oct \$4.99	Nov \$2.33	Dec \$1.66

Make checks payable to: Auburn Astronomical Society and return this application to:

Auburn Astronomical Society
c/o John Wingard, Secretary/Treasurer
#5 Wexton Court
Columbus, GA 31907

For questions about your dues or membership status, contact: jwin2485@bellsouth.net

Thank you for supporting the Auburn Astronomical Society!

Auburn Astronomical Society - Scheduled 2016 Club Meeting and Events Schedule*

Date	Event
08-Jan-2016	Club Meeting (Delayed 1 week due to 1st Friday being New Year's Day)
09-Jan-2016	New Moon
05-Feb-2016	Club Meeting
08-Feb-2016	New Moon
04-Mar-2016	Club Meeting
08-Mar-2016	New Moon
01-Apr-2016	Club Meeting
07-Apr-2016	New Moon
06-May-2016	Club Meeting
14-May-2016	National Astronomy Day - Traditional Open House at Gayle Planetarium - Montgomery - AAS Participation Requested
31-May - 04-Jun-2016	SE Planetarium Association Conference - Gayle Planetarium - Montgomery - AAS Volunteers Needed
03-Jun-2016	Club Meeting
04-Jun-2016	New Moon
01-Jul-2016	Club Meeting
04-Jul-2016	New Moon
02-Aug-2016	New Moon
05-Aug-2016	Club Meeting
01-Sep-2016	New Moon
02-Sep-2016	Club Meeting (Three straight AU home football games this month - may need to cancel or meet off-campus)
30-Sep-2016	New Moon
07-Oct-2016	Club Meeting
30-Oct-2016	New Moon
11-Nov-2016	Club Meeting (Delayed 1 week due to AU home football game on 11/5/2016)
29-Nov-2016	New Moon
02-Dec-2016	Club Meeting
29-Dec-2016	New Moon

* Club meetings are normally held on the 1st Friday of each month unless there is a conflict with holidays or other events
 Unless otherwise noted club meetings start at 7:45 PM CT