



**Volume 11, Issue 4
November 2010**

**General Meeting
19 November 2010**

7 pm, Cochise College, Sierra Vista, Rm. COM 704

Prof. Thomas Fleming

“Digging in the Stellar Graveyard: Most Degenerate Dwarfs are White!”

PLUS our monthly Show-N-Tells, upcoming event details, refreshments & Door Prizes!

The President's Perspective

by Wayne Johnson

It's hard to believe that I've been writing these articles for four years and that this will be the final one. However, all good things must come to an end and it is time for some new blood to express more vibrant ideas. For the most part it has been a great experience, mostly because we have such a wonderful group of people. I won't name names for recognition because they know who they are and if I forgot someone I would never live it down!

Anyway, one of the things I attempted to do with the club is to involve more people in its operation. Before me it was mostly one person, the president, who was run ragged in an attempt to do (nearly) everything. I knew that if I were elected I would not be able to do it all, partly because of my work responsibilities and partly because of the distance that I live from Sierra Vista. When I was elected president we were fortunate to have fellow board members elected along with me (and a few willing volunteers) to take over many key responsibilities that had been handled by one person. I think the experiment with distributed responsibilities over the past four years has worked out great and has certainly made the club more than a one man show. We still have far too many people coming to be entertained and not enough participators, but I think we'll eventually get past the stage where ten percent of the people are doing ninety percent of the work. I would love to see it achieve fifty percent of the membership carrying the club, but HAC is continuing to evolve in this new Internet world. It will be up to the succeeding administrations to figure out where club meetings fit in (why should we go to a meeting if we can find all the information on the Web?), how do we attract young people (they have different expectations about how to be entertained), and how is the hobby going to be

practiced with everything computerized and new professional telescopes observing everything in the sky leaving no room for amateur discoveries (good question - the interesting thing about astronomy to me has been my ability to find new and interesting things).

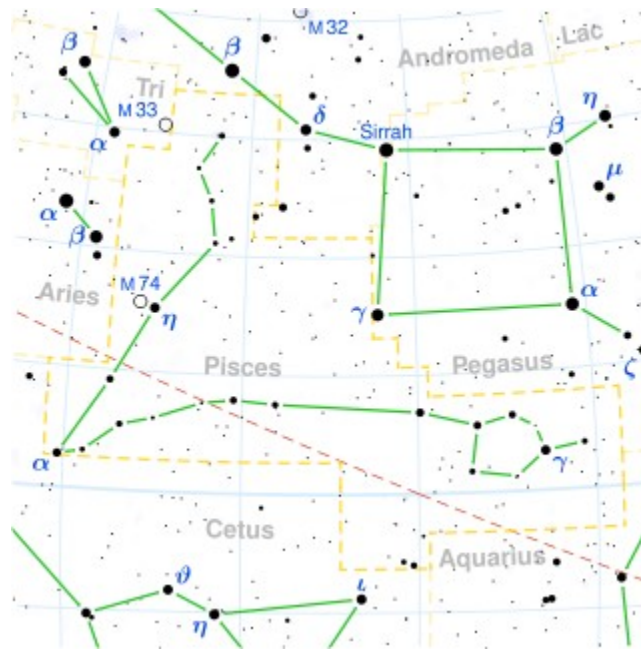
One of the other things I have attempted to encourage member participation in is the monthly (though I would prefer random) Sidewalk Astronomy (SA) Events. We are starting to get a small core of individuals who regularly help out with the SA functions, but we need more to get a critical mass to insure continuity. We have targeted three principal locations: Walmart, the Mall at Sierra Vista, and Ace Hardware and rotate between them. It would be best, if we had enough participants, to have a setup at each of the three locations each month or maybe limit it to one or two locations so that people know when and where to expect us because they really enjoy us bringing the sky to them. We all know these are not the most wonderful locations for finding remote nebulae or the esoteric "good stuff". However, these locations are where the people are. Our hope is to find individuals or families going along their daily routine and have them take five minutes of their time to look through a telescope at something as mundane as the moon (which is actually very exciting) or the planets (like Venus, Jupiter, or Saturn) or even some double stars. Ninety-nine percent of the people who come look through our telescopes have never done so before and they are flabbergasted at the sights they see through the scopes. You don't have to be an expert to point out something as simple as the moon or a planet. All you have to do is be enthusiastic about what you see through the telescope. The hope is to get the visitors so interested that they would eventually go view through the telescopes at UA South's Patterson Observatory and maybe go to one of our star parties (Astronomy Nights) at one of our member's local observatories and potentially become members. We have not been good recently at having functions at Veteran's Park, but we have done that with great success in the past. Perhaps that activity should be revived in addition to the SA activities. It's a lot to ask of members to participate in the several activities that our club has to offer, but it has great potential to pay off in the end.

Please try to participate in the activities HAC has to offer. One of the best activities with a "captive" (and eager!) audience is our Outreach Program where we go to various schools or host various groups, like the Scouts or church groups, either at members' observatories or we go to their location. We recently had a good Outreach Activity at Elgin Elementary School and I was blown away by a little girl who I allowed to point the telescope I had brought to an earlier Outreach around the sky all by herself. This last time she brought her own _10-inch telescope_ and wanted to know how to find several objects. It was a bigger telescope than any of the other Outreach volunteers brought! She is in the fifth grade and her science project is to find out which planets exhibit phases, a very deep subject for someone her age (or anyone, really). You never know when you are going to impress someone and in what way. I was humbled by the experience and hope she continues with her fascination with the sky. I hope you do, too!

Clear skies,
Wayne Johnson (aka Mr. Galaxy)

Sidetrips on the Celestial Sphere

by Mark Meanings



Pisces is a fairly large constellation visible in the early evening sky starting in mid-November. It is an ancient constellation representing a pair of fishes tied by their tails, the knot being marked by the star α Piscium. One legend identifies the constellation with Venus and her son Cupid, who turned themselves into fishes and swam away from the attack of the monster Typhon.

α **Piscium** (Al Rischa, the cord) is a challenging double star with an orbital period of 720 years. At present the components of magnitude 4.3 and 5.2 are slowly closing, and a good aperture and high magnification are needed to separate them. As well, both stars may be spectroscopic binaries.

β **Psc** is a magnitude 4.5 blue-white star 320 light years away.

γ **Psc** is a magnitude 3.7 yellow giant star 160 light years away.

ζ **Psc** is a wide double star 110 light years away, with components of magnitudes 4.9 and 6.3. It is a lovely sight, visible in small telescopes. Both stars are themselves double, but difficult to see in amateur telescopes.

η **Psc**, at magnitude 3.6 is the brightest star in the constellation. It is a yellow giant 140 light years away with a faint companion, difficult to see in small telescopes.

κ **Psc** is a magnitude 4.9 blue-white star 98 light years away, with an unrelated 6th magnitude binocular companion.

ρ **Psc** is a magnitude 5.4 white star 98 light years away. This star forms a binocular duo with the unrelated magnitude 5.5 orange giant star 94 Piscium 390 light years away.

ψ 1 **Psc** is a wide blue white double star with magnitudes 5.3 and 5.6 visible in small telescopes or good binoculars.

M 74 (NGC 628) is a face on spiral galaxy 22.5 million light years away, discovered in 1780 by Méchain. Photographs show this beautiful symmetrical spiral galaxy has two arms regularly coiled,

with many scattered condensations in them. Most amateur telescopes show it only as a dim haze. This is generally the trickiest Messier object to spot when doing the Messier Marathon.

NGC 524 is a round very symmetrical galaxy discovered by William Herschel in 1786. Photographs show faint traces of spiral structure in the galaxy with an almost stellar nucleus.

In addition, Pisces is currently the constellation that contains the location of the Vernal Equinox, due south of ω Psc, and, due to precession, slowly drifting below the western fish towards Aquarius.

Van Maanen's Star is also located within this constellation. It is the 3rd closest white dwarf star to our solar system, only behind the companions to Sirius and Procyon.

Website Review – www.calsky.com

by Mark Meanings

I stumbled onto calsky.com about a month ago while surfing the web for interesting astronomy sites. I was immediately impressed with the amount of information content that was available. Just by typing in my geographical location, I had immediate access to everything from sunrise & sunset, to the next ISS pass, to Iridium flares, to occultations, and much more! One can either visit the site, or have the site email you a list of events in advance. This site is definitely information overload!

November/December 2010 Bright ISS Passes

from www.heavens-above.com

Date	Start	End	Max Alt/Az	Mag
23 Nov	06:47:21	06:53:07	50 / SE	-2.5
25 Nov	06:04:43	06:10:35	61 / SE	-3.1
26 Nov	06:31:32	06:36:44	27 / NW	-2.5
27 Nov	05:25:31	05:28:17	70 / E	-3.4
28 Nov	05:52:22	05:54:27	23 / NNW	-2.1
14 Dec	06:47:58	06:53:58	68 / SW	-3.5
16 Dec	06:09:48	06:14:03	51 / SW	-3.3

NASA'S Fermi Telescope Discovers Giant Structure In Our Galaxy

a NASA Press Release, 9 November 2010

WASHINGTON -- NASA's Fermi Gamma-ray Space Telescope has unveiled a previously unseen structure centered in the Milky Way. The feature spans 50,000 light-years and may be the remnant of an eruption from a supersized black hole at the center of our galaxy.

"What we see are two gamma-ray-emitting bubbles that extend 25,000 light-years north and south of the galactic center," said Doug Finkbeiner, an astronomer at the Harvard-Smithsonian Center for Astrophysics in Cambridge, Mass., who first recognized the feature. "We don't fully understand their nature or origin."

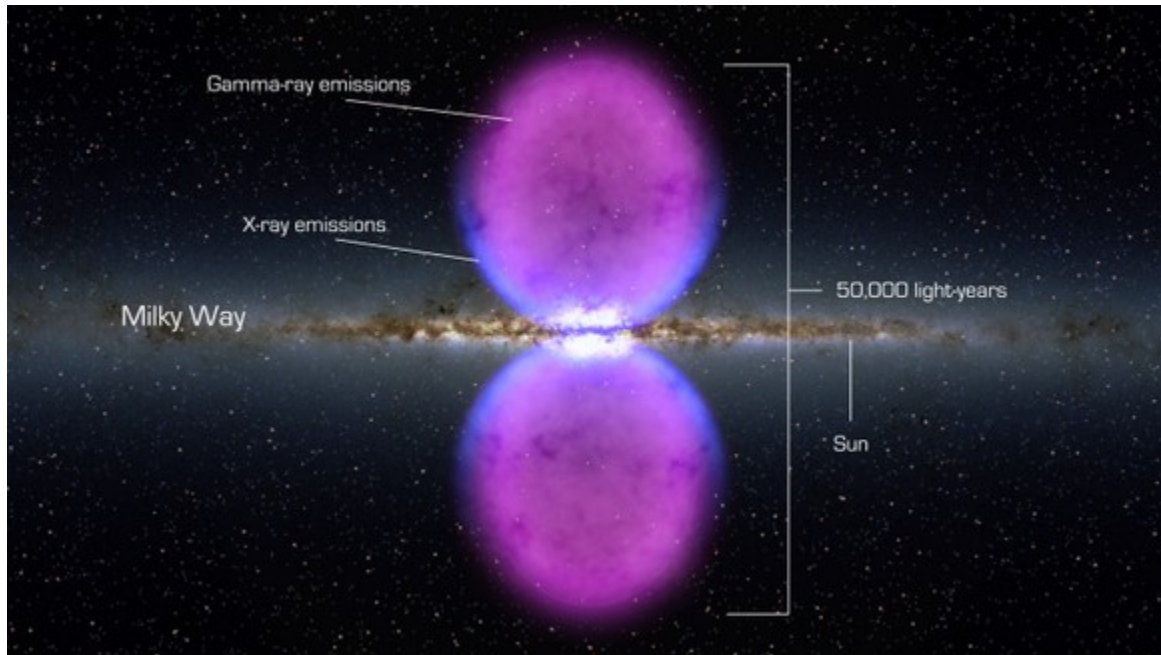
The structure spans more than half of the visible sky, from the constellation Virgo to the constellation Grus, and it may be millions of years old. A paper about the findings has been accepted for publication in *The Astrophysical Journal*.

Finkbeiner and Harvard graduate students Meng Su and Tracy Slatyer discovered the bubbles by processing publicly available data from Fermi's Large Area Telescope (LAT). The LAT is the most sensitive and highest-resolution gamma-ray detector ever launched. Gamma rays are the highest-energy form of light.

Other astronomers studying gamma rays hadn't detected the bubbles partly because of a fog of gamma rays that appears throughout the sky. The fog happens when particles moving near the speed of light interact with light and interstellar gas in the Milky Way. The LAT team constantly refines models to uncover new gamma-ray sources obscured by this so-called diffuse emission. By using various estimates of the fog, Finkbeiner and his colleagues were able to isolate it from the LAT data and unveil the giant bubbles.

Scientists now are conducting more analyses to better understand how the never-before-seen structure was formed. The bubble emissions are much more energetic than the gamma-ray fog seen elsewhere in the Milky Way. The bubbles also appear to have well-defined edges. The structure's shape and emissions suggest it was formed as a result of a large and relatively rapid energy release -- the source of which remains a mystery.

One possibility includes a particle jet from the supermassive black hole at the galactic center. In many other galaxies, astronomers see fast particle jets powered by matter falling toward a central black hole. While there is no evidence the Milky Way's black hole has such a jet today, it may have in the past. The bubbles also may have formed as a result of gas outflows from a burst of star formation, perhaps the one that produced many massive star clusters in the Milky Way's center several million years ago.



"In other galaxies, we see that starbursts can drive enormous gas outflows," said David Spergel, a scientist at Princeton University in New Jersey. "Whatever the energy source behind these huge bubbles may be, it is connected to many deep questions in astrophysics."

Hints of the bubbles appear in earlier spacecraft data. X-ray observations from the German-led Roentgen Satellite suggested subtle evidence for bubble edges close to the galactic center, or in the same orientation as the Milky Way. NASA's Wilkinson Microwave Anisotropy Probe detected an excess of radio signals at the position of the gamma-ray bubbles.

The Fermi LAT team also revealed Tuesday the instrument's best picture of the gamma-ray sky, the result of two years of data collection.

"Fermi scans the entire sky every three hours, and as the mission continues and our exposure deepens, we see the extreme universe in progressively greater detail," said Julie McEnery, Fermi project scientist at NASA's Goddard Space Flight Center in Greenbelt, Md.

NASA's Fermi is an astrophysics and particle physics partnership, developed in collaboration with the U.S. Department of Energy, with important contributions from academic institutions and partners in France, Germany, Italy, Japan, Sweden and the United States.

"Since its launch in June 2008, Fermi repeatedly has proven itself to be a frontier facility, giving us new insights ranging from the nature of space-time to the first observations of a gamma-ray nova," said Jon Morse, Astrophysics Division director at NASA Headquarters in Washington. "These latest discoveries continue to demonstrate Fermi's outstanding performance."

Send in Your Articles!!!!

It's all too easy these days to jump onto the web and find out about every astronomical event going on at the time. But what's harder to find is local activity. This, in my opinion, is what a Club Newsletter is for: to present to the members all the things going on within the club. These are things that generally won't be found anywhere on the web, but are of huge importance and interest to members of the club. So – if you have an event, or hear of an event, or are doing anything astronomical, please let me know so I can include it in the newsletter. It's easiest to email me at: cosmiclettuce AT yahoo DOT com.

Huachuca Astronomy Club P.O. Box 922 Sierra Vista, AZ 85636 <http://www.hacastronomy.com>, Yearly Membership: Individual: \$25; Family: \$35; Military: \$20; Student:\$10 (with restrictions); President: Wayne Johnson; Vice President: Glen Sanner, (520) 803-0576; Treasurer: Bob Kepple, (520) 366-0490; Webmaster: Del Gordon; Star Party Coordinator: Glen Sanner; Past President: Doug Snyder; Outreach Events Coordinator: Rich Swanson, (520) 803-7298; Loaner Scopes: Bob Gent, (520) 378-2915; Newsletter Editor: Mark Meanings