
The Shoreline Observer

Newsletter for the Shoreline Amateur Astronomical Association

President - Mark Logsdon Vice President - Gary Stroven Secretary/Treasurer - Phil Sherman

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June 1994

June Meeting

The June meeting of the Shoreline Amateur Astronomical Association will be held on Thursday June 16th, beginning promptly at 7:00 PM in the West Ottawa Middle School Planetarium. This will be the last meeting until September.

Business meeting.

Sandy will give a tour of the Summer night sky.

Gadget Night. Bring in that odd little gadget or huge telescope or whatever.

Astronomers: Life and Death of Stars video.

Refreshments will be served.

Minutes of SA³ Meeting 5-19-94

Treasurers Report: \$150.00 +/-

Pete started off with club mail. Two Star Parties are being planned by other clubs. The SMURF Star Party is on August 4,5,6,7 and is located about 30 miles north of Alpena on an abandoned airstrip. The Warren Amateur Astro Club is holding a Perseids Meteor watch at the Lake Hudson State Park on Thursday Aug 11th-17th. This is the park with excellent light pollution controls and will be a great place to view the Perseids. Check with Pete for exact times and directions.

We are still checking with NASA for information about the Junete Comet collision. Hopefully we can view the images of the collision at West Ottawa or the Community Ed building.

Sandy spoke with the librarian at WOMS and said that the Astronomy magazine is popular with the students. SA³ donates the subscription to them. We also donate subscriptions at Herrick Public Library.

Phil talked about the bank account that the club has at FMB. They have begun to charge us a monthly service charge, which is something we can't afford. Hopefully this will be resolved before our next meeting.

Phil also showed a tape that he had recorded from NBC Nightly News about the Jupiter/Comet collision coming up in July. It was quite informative.

Sandy showed a tape that was recorded from the courtyard of WOMS during the Annular eclipse in May. It showed students watching and learning about the eclipse.

We also watched a 10 minute video that was produced by Encyclopedia Britannica about eclipses in general.

Pete & Bill both brought slides of the Annular eclipse for all to view. Pete took his shots from Kalamazoo which was just on the grazing edge of annularity and Bill's shots were from Toledo which had the moon fully centered on the sun. Great work guys.

As you can see, if you missed May's meeting you missed a lot.

Astro Quiz

by Mike Henry

Every month I will print 5 questions about astronomy. Bring the correct answers to me at the next meeting. When you get 25 questions correctly answered then you will win a gift certificate from Great Lakes Pizza Co. P. S. Several people are getting very close.

- 1) The full moon that occurs nearest the time of the autumnal equinox is called the _____ Moon.

Harvest

- 2) Which is longer, a synodic month or a sidereal month?

- 3) What planet is "Superior" and "Inner" at the same time? *Mars*

- 4) The next Opposition of Mars will occur _____?

- 5) Pluto was discovered in what year? *1930*

WYGIWYG

(What you give is what you get)

As you may have noticed, I try to include a magazine article in each newsletter. The problem I am having is guessing whether or not everybody has already read about the article. So I would like to know what other sources of astro related info you read.

Below is a list of the monthly magazines that I read. Please check the ones that you read, and include at the bottom the ones that I don't have listed that you read regularly. If you also get info from radio, TV, computers or other ways let me know.

I would also like you to include ideas of what type of stuff you want in your newsletter. Such as telescope building, using star charts or anything else. I have looked through the past newsletters and noticed that some of these ideas had been done before, but maybe it's

time to print similar articles. It's all up to you.
After all, WYGIWYG!!

Astronomy Magazine

Sky & Telescope

Space Technology

Science News

Discover

Popular Science

Popular Mechanics

YOUR IDEAS:

Repaired Hubble Finds Giant Black Hole

After years of hunting for black holes, astronomers say they have found the first convincing proof that one exists at the center of a galaxy.

The U.S. team announced last week that several lines of new evidence now confirm that a black hole, with a mass of 2.5 billion to 3.5 billion times that of the sun, lurks at the heart of M87, some 50 million light-years away, occupying a space no larger than the solar system.

Holland C. Ford of the Space Telescope Science Institute and Johns Hopkins University in Baltimore and Richard J. Harms of the Applied Research Corp. in Landover, MD, announced the findings last week at a press conference in Washington, DC. Ford provided new details this week at a meeting of the American Astronomical Society in Minneapolis.

By definition, a black hole can't be seen. But astronomers can infer its presence by studying

how it effects its surroundings. The gravitational tug of a black hole at the core of a galaxy should pack stars so densely that the intensity of starlight would rise steeply closer to the center. And stars and gas orbiting the core would whip around so rapidly that the tug from invisible matter alone couldn't account for their motion.

The team had intended to follow in the footsteps of previous researchers, examining starlight at galaxy's core. But an image taken by Hubble's new wide-field and planetary camera in February changed that strategy. The camera, which resolved regions four times closer to the galaxy's heart than the old camera, revealed a central disk of gas trailed by spiral arms.

It is usually easier to obtain spectra of gas than of stars, Ford notes, because gas concentrates the light it emits into a few discrete wavelengths rather than spreading it over a wide range of colors. The disk's orderly rotation allowed the team to calculate accurately the velocity of the gas at different locations, in effect "weighing" the purported black hole tugging on the material. Stars typically have more complex orbits, making velocity calculations harder.

Using Hubble's faint-object spectrograph, the astronomers measured the speeds of hydrogen and oxygen ions on opposite sides of the rotating disk. Light emitted from the part of the whirling disk approaching Earth is shifted to shorter, or bluer, wavelengths, while light from the other side, which is receding from Earth, is shifted to redder, or longer, wavelengths by the

same amount.

The Hubble researchers found the hydrogen ions in the disk rotate at 450 kilometers per second at a distance of 60 light-years from the center of the galaxy. Oxygen ions, which are likely to be produced at a slightly hotter, inner region of the disk, rotate slightly faster; gas measured even closer to the center of M87 spins faster still - a sure sign that the core harbors a point mass, Holland says. When the results were tabulated, "We were all walking a few hundred feet off the ground", recalls Harms.

"I'm pretty convinced", says Douglas O Richstone, a black hole hunter at the University of Michigan in Ann Arbor. But he notes that an alternative, though less likely, explanation could account for the findings. A large cluster of lower-density objects - white dwarfs or neutron stars - might provide the gravitational tug seen in M87. Such a cluster, Though confined to a small volume, might not collapse to form a black hole for 100 billion years, Richstone adds.

He says the most exciting implication of the black hole finding is that it fits with a popular theory about how active galaxies get their power. Researchers have suggested that the jet in M87 represents a vestige of a quasar that once shone brilliantly at the center of the galaxy. In this model, the black hole and the disk of gas that feeds it together form the engine that powered the quasar and has now nearly run out of gas.

R Cowen

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FOR SALE

Larry Wildschut has a 1.25" focuser for a telescope that he is selling for only \$25 (\$50 value). It's not only as good as new, it is new. It's just not the right size for his needs. If you are interested in it you can call him, 772-4319.

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