



NEUTRINO UPDATE

Remember the neutrino? I remember back in the late 60's when Raymond Davis of the Brookhaven National Laboratory set up an experiment using a chlorinated cleaning fluid to detect neutrino's coming from the sun. The magic number that theorist John Bahcall said should be detected was 7...Davis counted only 2. Since then his experiment has been refined, checked by many different sources and recalculated but still his numbers stand. No one yet has come up with why what we actually see is not what we should get.

In looking at the theory and the neutrino measuring experiment there are possible reasons why the two don't coincide. One possible reason is that Bahcall may have miscalculated the sun's temperature and Davis' experiment only counts neutrinos that come from a rare reaction that is very temperature dependent. But even if the temperature is slightly incorrect, Davis says that there is still no way to lower the number of what is expected to be seen to those of what Davis actually sees.

What the real problem may be is that physicists are wrong about the neutrino in the first place. In theory, when the sun's hydrogen is changed to helium the by-products are electrons, photons, and the neutrino. Neutrino's alone are able to escape the sun's core directly and fly into space at the speed of light in large amounts. And since they do go into space unchanged, they should provide Earth scientists with direct information on what's going on at the sun's core.

But the one catch that imposes into any discussion on neutrinos is that although scientists know there are three so-called "flavors" of neutrinos, no one knows if they can change randomly back and forth between flavors. Davis' experiment only measures one of these flavors...so if neutrinos are changing flavors on the 93 million mile trip from the sun to Earth, Davis would understandably miss them and come up with the lower than expected number.

So far, no one has found if neutrinos oscillate from one form to another. Recently a new form of Davis' experiment has started using a medium that can measure neutrinos in a wider range. If these experiments come up with the same number that Davis has so far gotten, then there will be little question but that they do oscillate...and that in itself will open a whole new can of worms!

Presidents' Message

Believe it or not it's getting close to that time of year again, when we all break out our telescopes, computers, posters, VCR's and whatever else we have for the annual Astronomy Day observance. This year's official date for astronomy day is Saturday, April 27th...that's only 3 meetings away counting this next meeting. For the past few years the PAC program chairman has been head of the event, but this year our program chairman (Andy) will be out of the country, so we will need to find a substitute. I hope that one of you will volunteer for the job at the next meeting...if not I'll have to appoint someone (maybe myself) to be in charge. The job is really not too difficult if you select a good committee to help you out. Tasks can be divided up so that no one person bears the load. Please consider it. We also will be passing around sign-up sheets for people to bring telescope, VCR's, computers, posters, or whatever else you may have. I hope everyone will think about getting involved this year.

Starting this month we will be having PAC Board meetings after each of our regular PAC meetings on Tuesday nights. We hope that by doing this we can shorten the time taken for the regular business meeting. Many members have commented that the business part of the meeting takes too long. From here on out we will try to limit the business meeting to real business. See you at the meeting!

John Lortz

B.C.



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OBSERVING CHAIRMAN'S REPORT

February 15th is the date of the next star party so get your telescopes ready. A good starting object this month is the fairly bright galaxy NGC 2403 in Camelopardalis. Located about a degree west of 51 Camelopardalis, the galaxy is visible in 7x50 binoculars and shows some patchy details in an eight inch.

Farther south in Lynx 5 1/2 degrees west and one degree south of alpha is the nearly edge on spiral galaxy NGC 2683. It should be visible in a four inch telescope and my eight inch shows it as a fairly long needle of light with a brighter mottled middle.

In Gemini 2 1/2 degrees south and 1 3/4 degrees west of alpha is the unusual planetary nebula NGC 2371.2. It should be visible in a six inch as two faint fuzzy patches of light. Another interesting planetary is NGC 2392 located about 1/2 degree south of 63 Geminorum. It is rather bright and shows a small bluish inner shell with a central star and a fainter outer shell.

A nice big cluster is NGC 2265 in Monoceros. It is grouped around the fairly bright star S Monocerotis and is a large group of 20 or so bright stars with some faint nebulosity intermixed. 1 1/2 degrees southwest of S is the



by
David Knisley

unusual nebula NGC 2261, also known as Hubble's variable nebula. it is a small fan shaped patch of light that should be visible in a six inch telescope. Over the years, it changes its appearance slightly so it bears watching.

One object that is really helped by the Lumicon nebular filter is NGC 2237, the Rosette Nebula, located two degrees east of epsilon Monocerotis. The central star cluster NGC 2244 is easy in even small instruments but the nebula can be seen visually with the nebula filter and is beautiful when viewed with a large telescope and a filter.

NOTES FROM LEE...

Just a reminder to those of you who still haven't picked up your RASC Handbooks (Carroll Moore and Eugene Brott), this meeting will be the last call to pick them up. After that they go to the highest bidder! Also, Norma Coufal needs to pick up the books that she ordered (Lee needs the money!). Those of you who ordered Halley Comet Tshirts at the last meeting can pick them up this tuesday night. For anyone who didn't get a chance to order the Tshirts at the last meeting, you can still do so this meeting.

THIS MONTH'S PROGRAM...

Jack Dunn will be presenting this month's program. First he will have for us a planetarium presentation entitled "Halley's Comet Show", then he will be running a video tape on the new Digistar projection system. We hope you will make it!

IMPORTANT DATES

F 5th...full moon 10:19 UT
E
B 15th..monthly star party at
R Earl Moser's
U
A 19th..new moon 13:43 UT
R
Y 26th..PAC meeting 7:30pm

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