

Ayrshire Astronomical Society

Newsletter June 2015



Please send articles to newsletter@ayrastro.com

Loudoun Hall Feedback

Please continue to let us know your thoughts, both positive and negative, on the new venue. Any of the committee members can be approached at the meetings, or just e-mail. president@ayrastro.com.

Although I have heard a rumour that the venue may be changing (watch this space).

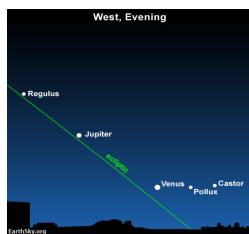
Next Month Newsletter.

Dear members, Due to ongoing family commitments I have had little time to do proper justice to the newsletter. As from next month Juan will be taking over the editors role. Juan is a very enthusiastic astronomer and has recently contributed some interesting articles I hope we can support him in his new role by sending in plenty of material to work with.

If there are any newsletter articles please send them to the usual e-mail : newsletter@ayastro.com

July Sky,

Planets Venus and Jupiter are both heading eastward (up) along the ecliptic, heading toward the star Regulus.



Be sure to circle July 18, 2015 on your calendar, Venus will be almost in conjunction with Regulus, a bit ahead of Jupiter in the race to the brightest star in the constellation of Leo.

On July 18, the crescent moon, Venus and Jupiter will all fit within a circle less than four degrees in diameter. (Four degrees of sky approximates two finger-widths at an arms length.) Don't miss out on this tight grouping on July 18, featuring the moon, Venus, and Jupiter, (the brightest, second-brightest and third-brightest objects in the night sky, respectively)

Up to July 6, 2015. Look for Mercury over the sunrise point on the horizon as darkness first gives way to dawn. Binoculars are recommended to enhance sky views. Mercury will stay in the morning sky until July 23.

Alex's Space.

How do we know what we know ?

How can astronomers tell how far away the stars are, how much mass they contain, and so on?

The answer has a lot to do with the equipment that researchers use, but important clues also come from the way in which many astronomical objects behave and interact. One of the most basic activities used by astronomers is to watch an object to see how its light levels change over time. This science is known as PHOTOMETRY meaning "measuring light". For example, think of an asteroid rotating in space, asteroids are irregularly shaped lumps of metal or rock smaller than a planet. An asteroid shaped like a spindle will look brighter seen from the side, than seen end on, so merely by studying how the light from the asteroid changes over time astronomers can tell how fast it rotates and form some idea of its shape.

Now imagine a star that shows very slight changes in brightness over a period, this could be a sign that planets are orbiting the star, because the light intensity of the star would dip very slightly as the planets pass in front of the star.

Some stars have spots on their surface, as the star spins, it's brightness would vary depending on how many darker spotty regions are in view at any given moment. These very small changes in light levels can now be detected and measured.

As useful as it is PHOTOMETRY has its limits, a far more powerful technique is SPECTROSCOPY ---- But I would say that---- Wouldn't I !!!

In spectroscopy light from an object is passed through a series of slits called a GRATING or through an angled piece of glass called a PRISM. This action 'splits' the light into a spectrum - a band of colours ranging from red at one end to indigo at the other end.

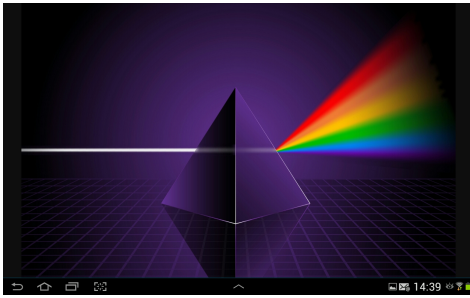


Photo of prism spectrum

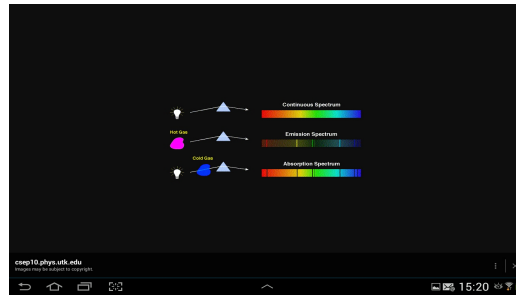


Photo of emission and absorption lines

This spectrum can also have very fine bright vertical lines called EMISSION lines or dark vertical lines called ABSORPTION lines.

Light from a hot dense gas or hot dense object will produce a spectrum with no lines, light from the same object will produce emission lines on the spectrum if it passes through hot fine gas and will produce dark lines if the gas is cold, but the position of the lines on the spectrum will be identical.

Another feature of these lines is that they can reveal how fast objects are moving and which direction they are heading. This is called the DOPPLER effect, named after Christian Doppler.

More about this in the next Newsletter.

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Dalrymple Primary School

On the first of June Graham, Alex, John and Juan gave a day long presentation to the pupils at Dalrymple Primary school as part of their science and engineering week. The presentation comprised of a short talk on “Beginning Astronomy”, which went down well and raised lots of interest although, after five deliveries, Graham’s voice was on the way out! Amongst other things, we took the club EQ6 mount and the club Newtonian which were linked up to Stellarium to allow the pupils to drive the scope in real time via a laptop.

Alex took along his array of spectroscopes and although, we had solar scopes, the sun stayed well hidden.

John took his scope along and Juan had a number of books. We also had the display stands.

Engagement with the pupils was excellent and we had about five classes through during the day with lots of questions and fun with the “hands on scopes” parts. It must have been enjoyable as some pupils ignored the 3:30 finishing bell and stayed on for a while looking at the scopes and asking questions – this was quite unusual by all accounts! We later heard from the school that they were well pleased with our input and that, as a result of our presentation, a number of pupils had asked to study “the Sky and Solar System” for their next topic. Maybe we have set some future astronomers and scientists on their career paths?

The teachers took a number of photographs of the sessions and we are hoping to receive a selection for the website.

Obituary

Carol Wright

It is with great regret this month that we must announce the death of our member, Carol Wright.

Carol passed away on the morning of Thursday 28th of May after a short illness.

The funeral was held at St Margaret’s cathedral in Ayr at 11am on Friday 5th of June with burial at Ayr cemetery. It was attended on behalf of the Society by Graham Longbottom and Nick Martin.

Carol will be missed at our meetings at which he was a keen and regular attender.