

Photometry and Spectroscopy
Directors Report – 2016
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Spectroscopy

Current Status

Percy Jacobs and myself are to the best of my knowledge the only amateurs actively doing spectroscopy. Even though we are located near to one another we have been working in isolation and not collaborated on any projects.

Observations

Very low resolution work is generally done with the Star Analyser 100 or the Rainbow Optics200 transmission grating.

I have been concentrating on observing B and Be type stars with just over 120 observations for the 2015 - 2016 period. Unfortunately no new Be stars have emerged from these observations and the low resolution of my system does not show the slight flux variances associated with the dopler shift in the wings of the hydrogen alpha line of known Be stars.

For novae and other transients I rely on the Astronomical Telegraphs ATEL and do nova searches of the southern sky with wide field DSLR imaging and the use of Iris and Astrometrica to process and blink the images. Periodic flux changes of known variables have been observed in the images but no transients brighter than mag eight which is the limiting magnitude of my images have been detected.

Other stars observed are the southern Wolf-Rayet stars such as WR48 Theta Muscae and WR11, Gamma 2 Velorum for periodic changes in the emission lines.

Extended objects such as comets and nebula are in the realm of slit spectrographs and are not well observed with transmission gratings though I have experimented on a couple of occasions.

Improved Spectrographs

What I do know is that Percy has experimented with optical fibre and an attempt to create a higher resolution spectrograph as described by G. Avila in the ESO publication CAOS but do not know how successful this was. I am currently building a slit spectrograph using parts scrounged from a Czerny-Turner configuration.

Members Interest in Spectroscopy

Two ASSA members have expressed an interest

Neil Viljoen - webmaster for ASSAJhb and the WRAC and Dr Pierre de Villiers our current ASSA president.

Analysis of low interest among members.

1. Spectrographs are very expensive and need to be coupled to a high quality monochrome CCD camera.
2. Telescope mounts need to be of high quality and track accurately.

3. Relatively steep learning curve regarding software to process the image and analyse the spectrum
4. DSLR cameras are not optimised for spectroscopy though are used from time to time with transmission gratings.
5. Active members are busy with other projects.

Photometry

Current status

One member, Dave Blane, completed a DSLR Photometry course offered by the AAVSO. No other member has indicated activity in photometry.

Dave completed the course but is already active in Double and Variable Star projects so will not pursue DSLR photometry for now. The reasons are obvious Photometry is very difficult and takes too much time.

This would also impact on members starting out in photometry including the fact that some of the software used requires a steep learning curve.

As with spectroscopy good equipment is essential but the greatest bugbear is that photometric skies are hard to come by thus affording a small window of opportunity to do really accurate work.

Projects

Roy Axelsen from Brisbane requested DSLR photometric measurements for delta Scuti type stars. The request was forwarded and Allen Versfeld volunteered.

When I followed up with Roy he said he had received no response from our members but that he was not surprised and understood as the activity regarding photometry was also on a very low level in Australia and New Zealand.

Future Plans

I would like to get members of the Astro Imaging Workshops interested in Photometry.

A good grasp on imaging methodology and the required software is essential to photometry which can be completed over a number of workshops.

Conclusion

I believe that Photometry and Spectroscopy could be separated as individual observing sections. Both are very demanding disciplines and require very different skill sets so can better be served by two dedicated directors.

In closing I wish Percy Jacobs all the best as incoming Director of this section and would like thank those that assisted me during my term as director.