

A new 0.68-m robotic telescope located in the northern hemisphere

Call for proposals:

Compact pulsators: Observing campaigns / Monitoring in service mode / Remote access

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Abstract:

Horten Videregående Skole, an upper secondary school in Norway, has a long tradition in offering observational astronomy courses for specialized science classes. From the past years we have experienced that by choosing stellar targets and observing program in collaboration with science collegium, the observational data that the students obtain can also be used for scientific purposes. We have now expanded our observational capacity with a 0.68-m robotic telescope in Norway, ready in August 2019, and are now open for proposals.

The students work and science – a twofold benefit from selection of targets:

Until now the instrumental setup has been on smaller local instruments up to 0.50-m size for introduction and practice ahead of the students main observing task with the 2.56-m Nordic Optical Telescope. This is conducted yearly after students pass entry level of both observation techniques and selected topics in astrophysics. The selection of tasks is usually done with a twofold purpose. Firstly, and most importantly, is that the students' options of assignments and tasks are designed to fit their course syllabus. Secondly, the selection of observational programs and targets is often done in collaboration with science groups in need of observational data.

We have experienced that stellar objects with rapid changes / cycles are the most efficacious choice for students. Examples of such targets are: pulsating sdBs, pulsating WDs and exoplanet transits. With this setup, our students' observations over the years have also contributed with valuable research and results to scientific papers.

Analysis conducted by the students is after the photometric reduction limited to a simplified statistical test procedure. Additionally, the data that is obtained can be further analyzed for scientific purposes. Because of this, the selection of the targets is essential, and we consider it valuable to continue and develop our collaboration with the collegium that focuses on observations of these types of stellar objects.

New telescope - site and performance:

Our northern location has benefits due to the possibility to keep the run length up to ~14 hours in wintertime. Such long runs in contribution to observation campaigns of compact pulsators can improve the resolution in the frequency domain. The circumpolar area of sky covers from 60-90 deg. declination. The telescope is a Newtonian type with minimal central obstruction of the primary mirror, equipped with a fast image download CCD photometric system, broadbands: BVRI+Schott BG40 filters, low-resolution spectrograph (R400), and fully robotic mounting. The telescope will be located at ~60 deg. latitude in a partially suburban / forest area with a typical seeing at 2". The average dark hours sky background magnitude is 20.8 +/- 0.1 over the full visual domain.

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