

An invitation to amateur astronomers to actively participate in ground-based support of the BRITE-Constellation precision space-photometry project

BRITE (BRiGht Target Explorer)-Constellation is a world-first astronomical space project involving several free-floating nanosatellites in simultaneous but unrelated orbits (see <http://www.brite-constellation.at/>). Each satellite, the size of a toaster, is equipped with a multi-lens telescope of 30 mm aperture which focusses the light of all stars in a 24-degree field onto a CCD detector. From long, intense series of exposures of selected targets within the field, one can carry out ultra-precise photometry in search of stellar variability related to a host of physical effects including pulsations, rotation and binary effects. Each nanosat has no moving parts and acquires all of its 7W power needs from the Sun to carry out all of its functions (pointing, tracking, data collection and transmission to the ground). Each telescope is equipped with one medium-band filter (blue or red), allowing astronomers to better trace the source of variability based on temperature as well as intensity fluctuations. Because of its small size and wide field with 30-arcsecond pixels, BRITE is limited to the brightest stars in the sky down to 4th or possibly 6th visual magnitude. BRITE-Constellation is an international collaborative project among Austria, Canada and Poland, each providing a pair of BRITE nanosats. The Austrian pair was successfully launched on 25 Feb 2013 and will be followed by the two other pairs by 2014.

As with all projects of this kind, its value is enhanced by simultaneous backup from the ground. Thus, a BRITE Ground Based Team was formed to coordinate this under the leadership of Konstanze Zwintz (konstanze@ster.kuleuven.be) with help for amateurs from Thomas Eversberg (Thomas.eversberg@dlr.de). Amateurs as well as professionals are welcome to join in the ground-based effort, especially by obtaining frequent, high-quality spectra in parallel with the BRITE observations. Normally the observing parameters are established depending on the nature of the stars and what one wants to get out of the observations. This can be established through contact with the actual proposer(s) to BRITE-Constellation (obtainable via konstanze@ster.kuleuven.be), who will likely provide minimum values for wavelength coverage λ , resolving power R, S/N and time resolution t. On average, these will likely be in the range of $\lambda \sim 1000\text{\AA}$, $R \sim 10000$, $S/N \sim 100$ and $t \sim 10$ min.

The actual stars in the field that the BRITE satellites are observing at any given time will only be known after termination of a successful commissioning phase, probably in May 2013. After that date, future fields will be announced in advance by the BRITE Science Executive Team (BEST). If you are interested in participating, please consult for details: <http://www.brite-constellation.at/>, then click at the left on "Ground Segments" and then "Ground-Based Observations". At the top and the bottom of this page there are links to a password protected page. Click and log-in with brite-gb, OBSbrite.

Here's to a fruitful pro-am collaboration with BRITE-Constellation!

Best to all,

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