

V-246 Visit Natallia Sudnik, St. Petersburg

We would like to thank NOVA's continued support for this visit of Dr. Natallia Sudnik, St. Petersburg, from 15 January to 5 February 2017.

After the successful publication of our A&A paper "Multiple, short-lived "stellar prominences" on O stars: the O6.5I(n)fp star λ Cephei" (Sudnik and Henrichs, 2016) we continued this project on the O7.5 giant ξ Persei. Of this star, we had collected more than 400 high-quality spectra, including those obtained by students on the Mercator telescope on La Palma. We used the same mathematical description of stellar prominences as before, to obtain a set of timescales to be compared with those obtained by space photometry with the Bright satellite. This combination is vital to understand the ubiquitous phenomenon of not-periodically variable line profiles in OB stars.

We discovered to our surprise an unknown periodicity of 2.04 days, present over 14 years in the region very close to the star. This has never been found for any other known non-magnetic O star, and the only explanation is that star carries a permanent magnetic field, of which we see only one magnetic pole, but which was never directly measured. This poses strong constraints on the model, on which we have concentrated since. We continue to work on this project and foresee another visit in June, when Natallia Sudnik's teaching duties end.