



STSM Scientific Report Template

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Visited scientist and host institution: Dr. Pablo Reig, Foundation for Research and Technologu – Hellas / University of Crete

Dates of STSM: from 19-10-2014 to 31-10-2014

Explain briefly below how your STSM matched one of these key-points :

1. strengthen current collaborative projects
2. establish new collaborations
3. obtain necessary knowledge for the application of new techniques
4. use host infrastructures that are not available at the home institute.

1. I have been observing with 1.3-m telescope at Skinakas observatory already a few times with high time resolution photo-polarimeter OPTIMA. Regarding observations with Robo-Pol it was my second visit.
2. By developing my skills with polarimetric observations, as well as with the polarimetric data analysis I was able to start a new collaboration dedicated to the polarimetric measurements with Dr Eda Sonbas from Turkey.
3. Developing observational skills with the facilities unavailable in Poland.
4. I was using the RoboPol polarimeter during the observations. There is no such an instrumentation, able to measure Stokes I, Q, U values simultaneously, in Poland.

Describe below the activities carried out during the STSM and the main results obtained.

Our white dwarfs polarization observations plan is based on three catalogues: The White Dwarf Catalogue of Villanova University (McCook & Sion 1999), "SDSS DR7 White Dwarf Catalog" (Kleinman et al. 2013), "Post-common envelope binaries from SDSS - XIV. The DR7 white dwarf-main-sequence binary catalogue" (Rebassa-Mansergas et al. 2012).

Having data base with more than 22 000 white dwarfs we selected objects that are visible at Skinakas Observatory in Crete (Greece), are of different spectral type (DA, DB and DC), are brighter than 15 magnitude, and zenithal angle not higher than 40 degrees to get good signal to noise ratio. Around 100 WDs fulfilled our requirements and according to the exposure calculator for the RoboPol instrument could be observed during three nights. Our final observing list consisted of 110 targets.

During my visit at Skinakas observatory I was going to perform our observing plan as well as the RoboPol routine observations of blazars. Unfortunately during two weeks there were only one and a half good observing conditions when I was able to perform polarization observations with the RoboPol polarimeter.

The second aim of my visit was to work on the photo-polarimetric pipeline. I was writing a Python code that is dedicated for the photometric and polarimetric pipeline for the Suhora observatory (<http://www.as.up.krakow.pl/main/index.php?lang=en>), where there is the 60 cm telescope equipped with four visual polarizers working in the range from 550 to 900 nm. The pipeline code has two subversions that differ by usage of the SExtractor or IRAF scripts to obtain the photometric values for different positions able of the polarimetric filters. For the calculation of the PA and PD the pipeline uses the pyhotn script that dr K. Krzeszowski and dr A. Słowikowska developed. The code was tested on the observations of polarimetric standards and gives proper results that were crossed checked with the values available in the literature. Additionally this code was also used on the VLT/FORST1 data. The same pipeline will be used for the data obtained with the remotely controlled 60 cm Plane Wave telescope equipped with ANDOR iKon-M 934 at the Adiyaman University Observatory in Turkey. It will be also equipped with the same polarization filters that are available at the Suhora Observatory.

I visited this observatory for two weeks in November (17th--27th), after visit at Skinakas observatory (October, 19th--31st). I collaborated there with dr Eda Sonbas. As an agreement we got 100 observing nights with this telescope. Our main aim is to perform polarimetric observations of bright blazars as complementary observations with RoboPol, bright high mass X-ray binary with Be stars as well as selected white dwarfs.