

Astronomy Department of Petnica Science Center

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Briefly about PSC

Petnica Science center (PSC) is one of the leading European institutions for extracurricular science education of high school students, motivated in engaging into scientific research. PSC aims to achieve the goal by allowing students to carry out their own research projects, supervised by professional scientists or science students. By learning through the research, they also learn how to use advanced literature, instruments and scientific software.



Figure 1: PSC after this year's renovation and expansion. Whole complex allows accommodation for 185 persons and around 3000 square meters of work space, laboratories and classrooms.

Astronomy department

Astronomy department exists in PSC since its founding, in 1982. Most of Serbian astronomers, working in the country or abroad, have been in PSC, either as students or as lecturers (or, in many cases, both). Students interested in astronomy go through a two-year cycle of seminars. First year consists of three seminars which provide them with extensive introductory lectures, data processing exercises and short lectures on modern trends, respectively. Second year is dedicated to student's independent research under the supervision of a senior associate (usually a professional scientist) or youth associate (usually undergraduate student of astrophysics or physics).

Main goal of the independent research project is to give student the opportunity to go through all the stages of the research process as it is in today's astronomy and astrophysics.



Figure 2: A few snapshots from this year's astronomy seminars:

Top: Lecture on black holes by Dr Miroslav Mićić (AOB).

Bottom: Students in discussion with Stanislav Milošević, youth associate of the department.



Student research projects

We try to motivate the students to pursue both observational and theoretical research projects, while keeping the topics as diverse as possible. Some of the projects carried out in recent years have been:

- Observation and modeling of close binaries
- Photometric detection of extrasolar planet transits
- Various N-body simulations of Solar System dynamics
- Detection and characterization of young stellar objects from on-line photometric databases
- Modeling and characterization of atmospheric extinction.

After the presentation and review process, the results are published in "Proceedings of Petnica student conference."

Instruments

In order to carry out observational research projects students are able to use MEADE 178ED apochromat, mounted on Paramount ME robotic mount, along with SBIG ST-6 and ST-7 CCD cameras and a set of Kron/Cousins UVBRclc filters.

As PSC is currently going through the major expansion, we are planning to obtain following instruments:

- ◆ **A 60 cm reflector telescope with a robotic mount and a dome**
- ◆ **2 smaller (~20cm) mobile telescopes**
- ◆ **3 CCD cameras intended mainly for photometric observations. We aim for fast, hi-resolution (>2MP), high quantum efficiency cameras, with several sets of high quality wide- and narrow-band filters**
- ◆ **Low-resolution, fiber fed spectrograph, mainly for pedagogical purposes**

We aim to obtain the equipment until the mid of year 2013 and to have first light on the telescope within two years.

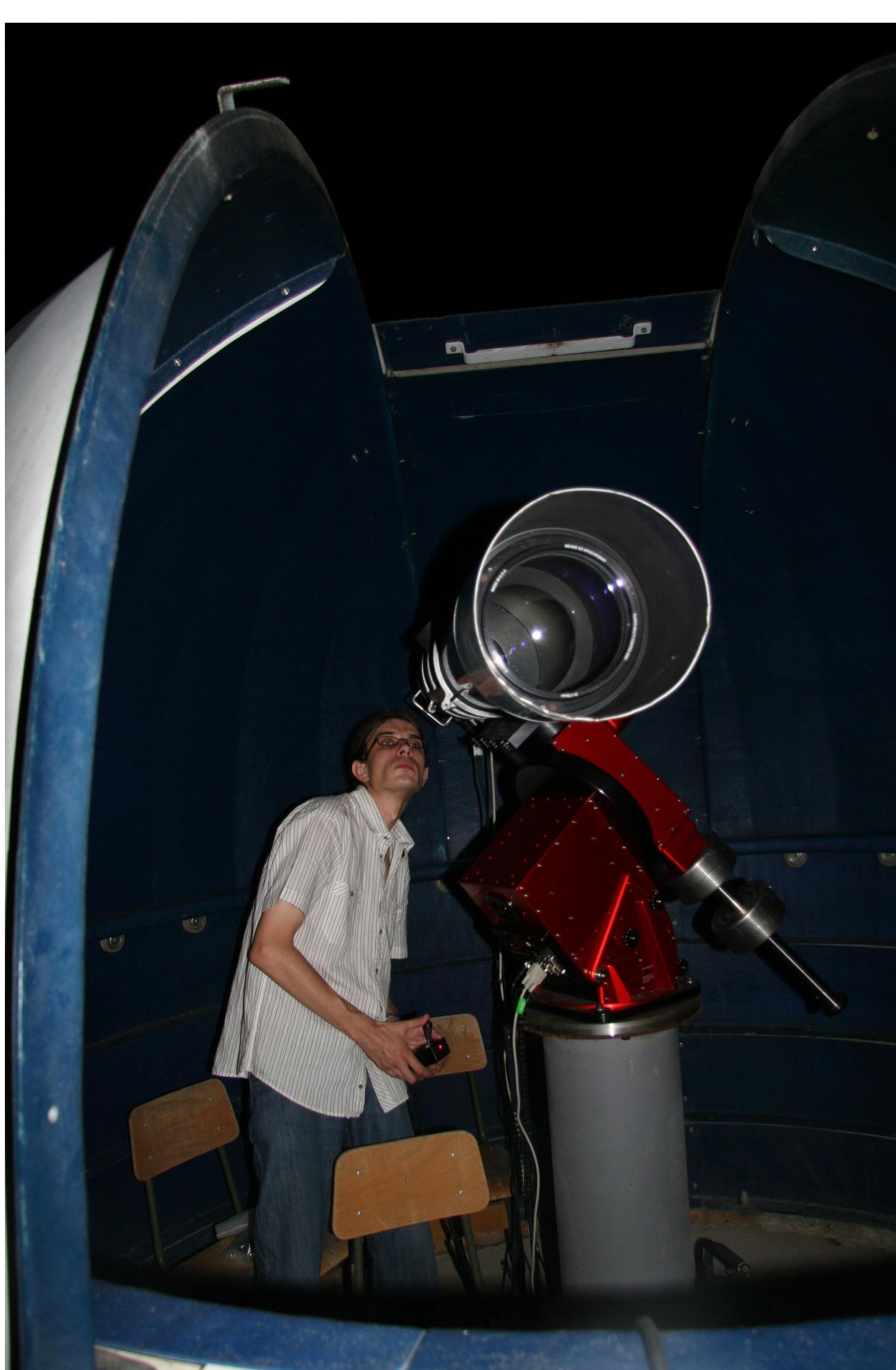


Figure 3: Igor Smolić, senior associate, controlling MEADE 178ED.

The astronomy department extensively collaborates with Astronomical Observatory Belgrade, Belgrade Faculty of Mathematics, Belgrade Faculty of Physics, Institute of Physics, Belgrade Faculty of Electrical Engineering, Novi Sad Faculty of Technical Sciences, Novi Sad Faculty of Sciences and other scientific and academic institutions in the country. We want to take this opportunity to thank them all once again.