

# Astronomy and astrophysics in Košice \*

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## Abstract:

Astronomical education of young people has very long history in the Department of planetarium and observatory of the Free-time Centre in Košice. The Club of young astronomers “Pallas” has already brought up three generation of young people. Activities of this club gained new dimension through collaboration with Faculty of Sciences, P. J. Šafárik University in Košice mainly with Department of theoretic physics and astrophysics. Many attractive and interesting events like observations of Solar and Lunar eclipses, Venus transit, Virtual university, Hubble 15th Anniversary, With telescope on the road invited hundreds and hundreds young people to astronomy, science and wish to learn about world surrounding us.

## 1 Introduction

It is very well known that interest of young people for physics as well as science systematically decreases in this commercial oriented world. Astronomy and astrophysics have special position in the science field. There is very close relationship between man and the universe: everybody who is born, lives and also dies under the sky, so everybody is a part of the universe. If we use this relationship astronomy can work as an attractor - tool that tightens young people to physics, science and the wish to learn about the world surrounding us. Such aim is not easy for astronomy and therefore it is necessary to join efforts of many organisations of various types. In this paper we would like to present one special and probably the remarkable type of such cooperation that was born in Košice, Slovakia.

Košice is the second largest city in Slovakia. You can find this city with rich history in eastern part of the Slovak Republic. The first written mention of the suburb can be dated back to the year 1230. Due to its advantageous business and strategic position the City of Košice grew quickly. Košice has the oldest coat-of-arms from among all cities in Europe. Nowadays Košice is a modern European town.

The astronomy has a long tradition in Košice where young people, scholars, students and all persons interested in astronomy can visit two planetariums what is the Slovak rarity. The

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first and older one occurs downtown in Slovak Technical Museum. The second planetarium you can find together with observatory in the Free-time Centre Domino. By the way it is a rare occasion to find observatory and planetarium in such facility.

## 2 The Free-time Centre Domino

The Free-time Centre Domino is an organisation mainly oriented on spare time activities of young people. Scholars and students come to our Centre to spend their free time actively in many clubs: dancing (modern, country as well as folklore), musical (brass bands, rock and pop bands), art, ceramic, photographic, dramatic, scenic, theatrical, scientific, computer and of course astronomical ones. Besides these regular club activities the Free-time Centre organises many special cultural, sporting and educational events and interesting camps during the holidays. Another part of the centre activities represents shows in planetarium and night sky observations in the observatory for groups of scholars and students as well as for all visitors and amateur astronomers.

Astronomical education of young people has a long-term tradition in the Department of planetarium and observatory of Free-time Centre. The Club of young astronomers “Pallas” is one of the best successful interest groups in the Centre; it has already brought up three generation of young people. Main activities of this club are connected with observations of the sky: from solar and moon eclipses, through planets, asteroids, comets, showers, to binaries and deep sky objects like nebulas, star clusters and galaxies. Some members of Pallas club are strongly interested in photography - art to immortalize the beauty of the night sky on photographic films and recently on CCD chips of their digital cameras. Activities of this club as well as whole observatory and planetarium department gained new dimension through collaboration with Faculty of Sciences, P. J. Šafárik University in Košice mainly with Department of theoretic physics and astrophysics.

## 3 Pavol Jozef Šafárik University

Pavol Jozef Šafárik University was established in 1959 as the second university in Slovakia, but the tradition of higher education in Košice goes back to the year 1657, when the bishop Benedict Kishdy founded the “Academia Cassoviensis” by the Memorandum of “Studium Universale”. Later, the university was changed into a royal university and then to the Law Academy which operated until 1921. Old University traditions were renewed by foundation of Pavol Jozef Šafárik University in Košice which consisted of Faculty of Medicine in Košice and Faculty of Philosophy in Prešov. The new University has enlarged by new faculties: 1963 - Faculty of Science, 1973 - Faculty of Law and in 1998 - Faculty of Public Administration.

The key mission of Faculty of sciences is to provide higher education based on the newest scientific findings in a wide international context, following the European trends and goals. Faculty of Science prepares experts in natural sciences, mathematics, informatics and teachers. The graduates of our Faculty have a very good reputation all over the world. One part of our faculty - Institute of Physics coordinates education of physics for students of Physics teacher branch and education for student of physics branches: Condensed matter physics (specialization: magnetism, physics of metals, low temperature physics), Physical engineering of materials, Nuclear physics, Biophysics and chemical physics and recently Astronomy and astrophysics.

Astronomy and astrophysics (as a part of Department of theoretic physics and astrophysics) has not long history (the first student of this branch graduated in 2000), but it has a perspective

to become the best educational institution in this branch in Slovakia (and probably in larger European territory) due to the study conditions that are offered to our students. The very important role plays our very close cooperation with other institutions, mainly with Astronomical institute of Slovak Academy of Sciences in Tatranská Lomnica. This cooperation assure the high quality of presented information in educational branch as well as the significant scientific research. Our colleagues from Astronomical institute give lectures from various astronomical branches like the physics of the Sun, Interplanetary matter and interacting binaries, admit diploma thesis for our students; some lectures are realised directly in the Astronomical institute. Another promising cooperation rises with Kolonica Observatory, equipped by the largest telescope in Slovakia (diameter of primary mirror 1 m).

## 4 Cooperation

Our goal is to attract more young people into astrophysics. We try to exercise an influence on university students - young people, who are mostly decided to do their scientific careers. We realise that it is necessary to start the popularisation of astrophysics (and physics at all) from scholars to students. In this field the Free-time Centre has quite strong position. In 2000 the agreement about cooperation between the Free-time Centre Domino and Faculty of Sciences, P. J. Šafárik University was signed up.

The main goal of this cooperation is to aggregate forces to enhance achieved results in educational process and popularisation of astronomy, natural sciences and science at all. On one side scholars and students - members of astronomical clubs in the Free-time Centre have chance to work with scientists on particular scientific problems using professional equipment, what is very attractive for them. Some former members of astronomical clubs are now students of astronomy and astrophysics in our faculty. On the other side our university students use equipment of observatory and planetarium during their special lectures (Elements of Astronomy and Astrophysics, Astronomical equipments, etc.) or during preparation of their Diplomas (Reduction of long-term observation of solar photosphere - V. Kozarová, From the life of stars - K. Meňuchová, Short history of the Universe - M. Pančíšin - new shows in the planetarium for scholars and students). Students of Physics teacher branch can achieve the first educational experiences during leadership of clubs in the Free-time Centre. Preparation and organisation of conferences, public presentations and special astronomical events represent additional part of our collaboration.

One of our great astronomical events, which was realised in the frame of our cooperation was Venus transit 2004. Faculty of Sciences started to operate the optical network in the Free-time Centre during 2003. In the frame of so called "Virtual University" (the faculty's project of utilisation of optical network for educational purpose - e.g. for propagation of educational presentations) was observation of this event (using video camera mounted on the telescope in observatory of the Free-time Centre) propagated as the live transmission in Internet. So besides hundreds of scholars, students and people interested in this event which came to the Free-time Centre next thousands had possibility to see this unique astronomical presentation in Internet. Moreover, the videoconference was established, so people interested in this event could directly communicate with professional astronomers. This observation had besides the propagation character also scientific importance: our young astronomers were involved into the ESO project of astronomical unit measurement.

Another very successful common event was celebration of the 15-th anniversary of launching of Hubble space telescope in April of this year. This event was organised in cooperation with European space agency. The Faculty of sciences purchased new equipment for planetarium this

year. We cooperate during preparation and organisation of conference for teachers of physics in Košice region, competitions, expeditions and camps for young people interested in astronomy and astrophysics.

## **5 Conclusions**

We are going to prepare another public observations of special astronomical events like solar eclipses in October 2005 and March 2006 and many others. So we can proudly say that our cooperation brought the first results and we hope that the cooperation will continue successfully in the future. We hope that it can be inspired and useful for the colleagues in the Europe.

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