

# Astronomy popularization at the University of Wrocław

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Science popularization found many expressions in the history of the Astronomical Institute of the University of Wrocław. The long-lasting is the tradition of popular astronomy lectures. Occasional celestial events are the base of public observations. Since 1998 the Institute boldly participates in the Lower-Silesian Science Festival. The rising public interest in astronomy encouraged us to establish "Planetarium" laboratory in 2008. Together with the Astronomical Institute of the Academy of Sciences of the Czech Republic we established in 2009 the very first trans-border dark-sky park in the location of Izera Mountains, where since then the public can benefit from excellent observational conditions and the astronomers' support.

## 1 Introduction

The scientific outreach, considered as the promoting of public understanding of science, has a long history. Its goal includes awareness of science importance for the modern society and promoting the scientific activity in next generations. It finds its expression in many forms, e.g. science communication, science festival, museums or fairs. The scientific outreach is widely recognized as a part of modern scientific activity. Science popularization at the Astronomical Institute of the University of Wrocław started in the fifties of the 20th century with occasional public lectures and observations, and now it constitutes a regular, and important part of the Institute's activity.

## 2 Popular astronomy lectures with observations

The Institute has been delivering astronomy and space science lectures for the public since the 1950s. The gap appeared due to the martial law period in the 1980s. A decade later the lectures started again to be delivered on regular basis. They are offered every second Friday evening and followed by sessions of observations with the use of the historical 8-inch Clark-Repsold refractor. From 1990s till now more than 10 000 people have attended these lectures.

## 3 Contribution to the Lower-Silesian Science Festival

Each year, since the very first edition of the Lower-Silesian Science Festival in 1998, the Institute arranges rich set of contributing events, including shows, workshops, projections, lectures and others. Our events always constitute a substantial part of the offer of the Department of Physics and Astronomy. Every year we offer lectures, workshops for elementary school pupils and public sky observations. We also offer short planetarium shows during each festival.

## 4 Public observations

On the occasion of special celestial events we arrange public observations at the Institute or somewhere in the city of Wrocław. We took the opportunity of the following events to attract local public attention to astronomy.

- 25th March 1996, Hyakutake Earth passage;
- 7th May 2003, Mercury transit;
- 8th June 2004, Venus transit;
- 29th March 2006, solar eclipse;
- 6th June 2012, Venus transit;
- 20th March 2015, solar eclipse;
- 9th May 2016, Mercury transit.

Usually hundreds of people attend these meetings. During the last solar eclipse about 2000 people visited us.

## 5 Astronomy Teaching and the Popularization Laboratory "Planetarium"

The idea to build a small planetarium for the 11th edition of the Lower Silesian Science Festival popped up at the beginning of 2008. Planetarium shows turned out to be a great festival attraction. Finally the Astronomy Teaching and Popularization Laboratory "Planetarium" was established at the Faculty of Physics and Astronomy of the University of Wrocław, as an organizational unit of the Astronomical Institute, on the 1st December 2008. The purpose of the Lab creation was to enrich the educational offer of the Faculty of Physics and Astronomy addressed to students of astronomy, geography, and physics, and to support schools of all levels in teaching astronomy, physics, geography, and life sciences.

The present, modernized projection system of the "Planetarium" consists of a 4K resolution projector, a semi-spherical mirror, and a 4-meter dome of a very good quality. As the screen is inclined at an angle, the 30 available seats are arranged in curved rows in front of it. The dome serves for both, planetarium shows and astronomy lessons. The Lab is also equipped with a model of celestial sphere, celestial globes (including an illuminated globe with images of constellations), globes of the Moon and the solar system planets. The Johannes Hevelius stellar atlas and other atlases of the heavens, as well as planispheres of the skies and astronomical yearbooks are also used. Portable telescopes for night observations, a portable telescope with H-alpha filter for solar observations, and glasses with filters for solar observations enable to organize observational activities.

The technical base and the software of the "Planetarium" are being systematically developed, and updated.

The offer of the Lab "Planetarium" includes shows in the digital planetarium and astronomy lessons in forms of multimedia presentations. Astronomy workshops and telescope observations can also be organized. The offer is addressed to preschool children, school children, youth, and adults. It is also appropriate for students of astronomy, geography, and physics. The content of all the shows and lessons is adjusted to the age of the visitors, and all the Lab's activities are carried on by professional

astronomers or PhD students. On request lessons and shows are presented in English. The Lab's visitors come not only from Wrocław and Lower Silesia but also from other regions of Poland, and occasionally from abroad.

The "Planetarium" Lab acts yearly since October till June the following year, from Monday to Friday, from 9 am to 3 pm. Every group up to 30 persons is welcomed, and can book a visit far in advance. From May 2009 to April 2016 the Lab have visited more than 1900 groups what is almost 45 000 visitors.

## 6 Izera astronomical projects

In 2009, the International Year of Astronomy, our Astronomical Institute took part in establishing the Izera Dark Sky Park. This dark-sky area is the first trans-border park in the world. It was established by the Astronomical Institute of the Academy of Sciences of the Czech Republic, the Protected Landscape Area Jizerske Hory, and Liberec Regional Directorate of the Czech Republic Forests of the Czech side, and our Institute together with the Forestry Commissions of Świeradów and Szklarska Poręba on the Polish side. The Park has been equipped with the 2m height gnomon and the in-scale model of the solar system stretched between tourist station Orle and the top of Stóg Izerski.

The Izera Dark-Sky Park is the place of a few regular outreach events in which the astronomers of our Institute collaborate. Worth mentioning are the following: Astronomy Days arranged twice a year on the Polish side in Świeradów and the Czech side in Jizerka; School Workshops on Astronomy arranged by a physics teacher, Grzegorz Żakowicz, and led in Orle station since 2007 under the patronage of our Institute and the Solar Physics Division of Space Science Centre; Ogólnopolskie Spotkania Astronomiczne, which since 2007 also are located in Izera Dark-Sky Park.

## 7 Other projects

From July 2013 to December 2014 our Institute in collaboration with Towarzystwo Izerskie realized the educational project WYGASZ, in the frame of the national project Ścieżki Kopernika. Thanks to this project a Lab established in the Orle tourist station was equipped with optical instruments and computer support, helping in performing sky observations, lectures and workshops. Specially trained teachers from the Lower Silesian schools with their pupils can use the Lab and its equipment to realize workshops and contribute to astronomical scientific projects.

The Institute willingly cooperates with individual schools. A unique example of such cooperation is the long lasting collaboration with the V Liceum Ogólnokształcące in Legnica led by a teacher Iwona Bronowicka for more than 20 years.