

The show: Evenings with stars in the Astronomical Observatory of the Jagiellonian University

Tomasz Kundera¹ and Elżbieta Kuligowska¹

1. Astronomical Observatory of the Jagiellonian University, Orla 171, 30-244 Kraków, Poland

The meetings of the series *Evenings with stars* (*Wieczory z gwiazdami*) have been held in the Astronomical Observatory of the Jagiellonian University in Kraków for over 10 years. Enjoying unflagging popularity (almost every time there are more people wanting to participate than number of places we can offer) they became a permanent offer to popularize science, in particular astronomy, in the royal city of Kraków. Over 100 meetings give an opportunity to summarize and present plans for the future.

1 Prehistory

The popularization of science has always been part of the activities of the Jagiellonian University, of course also in the field of astronomy. Once it was treated with bigger, once with less affection, often becoming a *tourist nightmare* when guided tours were to many rather a nuisance than an opportunity to share knowledge and present scientific activity. Reasons included, among others, a relatively unattractive form and the fact that most groups were just school classes. The idea of making more interesting meetings directed at people much more interested was emerging for a long time, disappearing in the darkness of oblivion. The fact that there are such expectations was persuaded by sporadic events organized ad hoc or the enormous amount of interest that was experienced during more publicized events such as the passage of Venus or the opposition of Mars. It is worth to mention that during the Great Opposition of Mars in 2003 (a phenomenon highly publicized in the media) during a single night, about 1800 people visited Astronomical Observatory of the Jagiellonian University (OAUJ)! Such huge interest could not be ignored.

2 Beginnings

The first, irregular meetings were organized in 2007. They were initially loose in the form and gathered mainly people who were notified by the word of mouth and members of the dynamically acting Astronomy Students' Association (NKSA) in the OAUJ. The accumulated experiences led to the creation of two different series of meetings: *Astrominaria* organized less frequently, intended for more advanced listeners, mainly students and *Evenings with stars* (*Wieczory z gwiazdami*, the name was first used in mid-2008), much more popular, designed for people with diversified preparation. A definite development was brought by 2009, the International Year of Astronomy. Soon, a baseline of meetings was developed: lecture, sightseeing, observations. It gave the opportunity to meet the very diverse needs of visitors. An

100	mgr Tomasz Kundera	100
101	dr hab. Marian Soida	Interferometry radiowe - największe teleskopy świata
102	dr Szymon Sikora	100 lat Ogólnej Teorii Względności
103	mgr Bartłomiej Dębski	O gwiazdach, które ewoluują w nietypowy sposób
104	dr Elżbieta Kuligowska	Astrobiologia
105	mgr Bartłomiej Dębski	Niebo. Inaczej
106	Michał Kusiak	I Ty możesz zostać odkrywcą komety!
107	dr hab. Sebastian Szybka	Chaos, czyli rzecz o motylach i gwiazdach
108	mgr Natalia Żywucka-Hejzner	W poszukiwaniu nowej Ziemi
109	mgr Bartłomiej Dębski	Najmniejsze supemasywne czarne dziury
110	dr Elżbieta Kuligowska	Gwiazdozbiory
111	mgr Oskar Kopczyński	Historia supemowych
112	mgr Tomasz Kundera	Trudne proste sprawy

Fig. 1: A fragment of the list of lectures.

age-cross section of participants, from a few years old children to the students of the University of the Third Age, is an evidence of that diversity. In addition, the three elements included in the meeting allowed to free themselves from the weather problem. Observations carried out with optical instruments obviously depend on the weather.

3 Progress

The rapid growth of interest was strengthened by the use of the most effective communication medium, namely the Internet. The number of visitors (reaching 90 people) quickly exceeded the organizational possibilities (the limit of places in rooms and domes). Starting from 2008, registration was necessary due to the large number of applicants¹. With a great deal of interest another problem arose – organized groups, especially school ones. Due to the relatively large number (20 to 40 students), the school groups were able to dominate the meeting completely, blocking the place for others. They also required a specific approach in terms of both subject and care. Since the school year 2015/2016, a decision was made to introduce special *School Evenings* dedicated to generally lower secondary and high school classes, leaving *open* evenings for other visitors.

4 Lecturers

In total, lectures have been conducted so far by 45 lecturers mostly associated with OAUJ. They presented one or two topics, but we also have record holders with 10 or more presentations (Fig. 1). Guided tours and observations are carried out to a large extent by the forces of the Students' Scientific Society of Astronomy. With their great involvement, it creates the need for constant training of new people due to the obvious rotation in the group of students (Fig. 2 left panel).

¹registration page: <http://www.oa.uj.edu.pl/popularne>

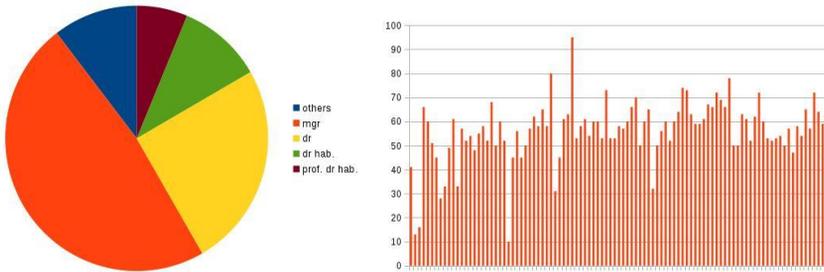


Fig. 2: Left: Distribution of degrees and titles among lecturers. Right: Number of applications for individual meetings. The lowest was recorded on Jan. 14, 2011, the highest on May 11, 2012.

5 Participants

In total, the Observatory hosted approximately 5,000 listeners of *Evenings with stars*. On average, about 60 people register for every meeting. Actual turnout depends strongly on the expected weather and is even lower by 1/4 under unfavorable conditions. The average is completed by people appearing without a reservation in very good weather (Fig. 2 right panel). Despite the popular level, we generally do not encourage the participation of children under 10, however, without refusing admission, if the parent is convinced that the child is ready to meet the astronomy. As a result, the youngest participants were 5-6 years old. There is no upper age limit and we often host elderly listeners. However, the dominant group (> 60%) remains young people between 15 and 30 years. Social impact is noticeable, manifesting itself, among other things, by encouraging young people to take up astronomy studies (some of them started to lecture themselves in evening meetings later.)

6 Plans

The *Evenings with stars* project has been successful in getting the public's expectations. Therefore its continuation is obvious to preserve the educational impact on the society. Particular emotions emerge with the possibility of direct observation. Unfortunately, for weather reasons, optical observations are often, and even usually impossible. Therefore, we plan to include radio observations, much more independent of the weather conditions. The basis for the demonstrations will be a 15 m radiotelescope and a 3 m radiotelescope EUHOU-MW located in the OAUJ. This should result in a further increase in the attractiveness of the meetings, whose additional advantage will become exotic radio universe.

7 Finances

So far, participation in *Evenings with stars* is free, and their implementation almost costless based on enthusiasm and volunteer work. For further development, however, it seems necessary to obtain funds at least to develop new scenarios and train new people.