

Researching planetarium educator PCK and teaching at the Planetarium

We are looking for one phd-candidate that will combine a PhD project (60%) with an educational assignment at the Brussels Planetarium (40%). The combination is envisioned to be supportive of both the research project and the teaching efforts at the Planetarium.

PhD-Project (60%)

Research has shown that the added educational value of planetariums (for visiting school groups) only emerges if the planetarium educators incorporate educational theory-driven and research-confirmed practices of (formal) school science education into the planetarium learning environment. After all, planetarium educators, like teachers, set out learning goals they want to achieve with the students, guide the students through the content, and interact with the students. A framework that describes teachers' knowledge needed for teaching specific content to specific groups in a specific setting is that of Pedagogical Content Knowledge (PCK).

In this project we want to study the PCK of planetarium educators. In doing so we will test the refined consensus model of PCK (Carlson et al., 2019) in the particular setting of the planetarium and add to the recently proposed informal-science-educator PCK model (Busch et al., 2022). Developing a planetarium educator specific PCK will also allow for more targeted professional development.

The project will start with an extensive literature study, followed by a multiple case-study employing qualitative methods (though some quantitative research is also possible).

Educator at the Brussels Planetarium (40%)

The candidate will be responsible for

- Guiding groups of the general public through astronomical phenomena in and the beauty of the night's sky, as well as operating the digital projector system to show full dome films;
- Teach astronomy concepts to school groups (either primary or secondary education, to be determined in collaboration with the planetarium director) with the help of the digital planetarium functionalities;
- Participate to the creation of full-dome modules for the astronomy lessons and of hands-on workshops;
- Implement educational content for the interactive exhibits (interactive multi-touch table, digital globe, VR experience); and
- Assist in the organization of outreach and educational events.

According to the needs, the candidate will be asked to aid in the general tasks of the Planetarium, including possible presence during week-ends and holidays.

Profile

Candidates have a master diploma, or be in a position to obtain a master diploma within 3 months after the dead-line, in one of two areas:

- astronomy, physics or equivalent (e.g., mathematics or engineering) or
- educational sciences, science education or equivalent (e.g., a teacher degree).

If your master was awarded outside of Belgium, the Netherlands and the Grand-Duchy of Luxembourg, you will need a certificate to demonstrate the equivalence of your degree (see https://www.belgium.be/en/education/equivalence_of_diplomas) before we can offer you a contract.

Additionally, candidates

- demonstrate interest or experience in the other area described above;
- are interested in conducting theoretical and empirical research;
- can work systematically;
- can work both independently and in a team;
- can interact with children, adolescents, teachers and educators;
- can communicate about the research (on a more technical or theoretical level); and
- are fluent in Dutch and English, additional fluency in French is considered a plus.

Job application procedure

The candidates should send a CV and an accompanying motivation letter, with possibly a reference letter, no later than April 14th, 2023, to jan.sermeus@planetarium.be with a copy to hrrob@oma.be.

For more information regarding the PhD project you can contact Prof. dr. Jan Sermeus via jan.sermeus@planetarium.be or jan.sermeus@kuleuven.be, or Prof. dr. Mieke De Cock via mieke.decock@kuleuven.be.

For more information regarding the educator position you can contact dr. Rodrigo Alvarez via Rodrigo.alvarez@planetarium.be.

Working conditions and job-offer details

The selected candidate will be employed by the Royal Observatory of Belgium, and be paid at the SW1 level. The contract offered is initially 2 years but can be extended, given positive evaluation of both aspects of the position, twice up to a maximum of 6 years.

The candidate will take up the PhD program at KU Leuven Arenberg Doctoral school. Details regarding the expectations and regulations can be found [here](#).

Information

The appointed candidate will become part of the Brussels Planetarium staff, as well as become part of the APER research group of the KU Leuven.

The [Planetarium](#) of the Royal Observatory of Belgium in Laken is one of the oldest (inaugurated in 1935 for the Brussels International Exposition) and one of the largest (23m dome, 350 seats) planetariums of Europe. It is open 363 days of the year, welcoming approximately 25 000 general public visitors to experience 360° full dome films, events and spectacles focused on astronomy. The planetarium also hosts dedicated lectures to explain the night's sky and astronomical concepts and events to 25 000 students of all ages (kindergarten, primary, secondary and higher education). The planetarium also serves as an outreach facility for the Space Pole in Uccle, i.e. the [Royal Observatory of Belgium](#) (KSB-

ORB), the [Royal Meteorological Institute of Belgium \(KMI-IRM\)](#) and the [Royal Belgian Institute for Space Aeronomy \(BIRA-IASB\)](#). As such visitors can learn about seismology, climate change, atmospheric science and much more in addition to astronomy and astrophysics.

[The Astronomy and Physics Education Research \(APER\) group](#) is part of the department of Physics and Astronomy of the KU Leuven. Current and previous projects of the APER group investigated conceptual understanding in physics and astronomy, the role of mathematics in physics education and the potential of the planetarium in teaching and learning astronomical topics.

KU Leuven is a research oriented institution and is among the top universities in Europe. Leuven is one of the oldest university towns in Europe (KU Leuven was established in 1425), is located at 30 km from Brussels. Both the university and the town have a rich history and a unique, friendly atmosphere.