

PROGRAM

Monday, August 17

8:00–15:40 Registration

Eötvös Hall (chair: P. Tasnádi):

9:00–9:20

Opening

P. Surján, dean of the Faculty of Science

A. Kárpáti, head of the Centre for Science Communication

T. Tél, head of the Physics Education PhD Program

9:20–10:00

M. Michelini (Udine, Italy):

Research based proposals to build modern physics way of thinking in secondary students

10:00–10:40

H. Salmi (Helsinki, Finland):

Bridging the gap between the formal education and informal learning via science centre pedagogy

10:40–11:00 Coffee

11:00–12:40 two parallel sessions (5 contributions)

Environmental issues (Eötvös Hall, chair: U. Feudel):

11:00–11:20

M. Pető (Sepsiszentgyörgy, Romania)

Robotics, CANSAT, ARDUINO – physics at Székely Mikó Science Club

11:20–11:40

Sz. Bérczi (Budapest, Hungary)

Measuring environmental physics and chemistry by educational Hunveyor and Husar space probe models

11:40–12:00

A. Komáromi (Budapest, Hungary)

With space research for more lovable physics classes

12:00–12:20

Zs. Horváth (Budapest, Hungary)

Search for Earth's twins

12:20–12:40

A. Gróf (Budapest, Hungary)

Carousels to Coriolis. What did you learn in geography?

Methodological innovations (Ortvay Hall, chair: P. Tasnádi):

11:00–11:20

M. Kiss (Gyöngyös, Hungary)

Mikola competition

11:20–11:40

T. Tasnádi (Budapest, Hungary)

Puzzling problems on gravity

11:40–12:00

M. Vigh (Budapest, Hungary)

Funny motions of billiard balls, rubber balls and hockey pucks

12:00–12:20

G. Bakker (Rotterdam, The Netherlands)

Gamification in education

12:20–12:40

Á. Bordás (Senta, Serbia)

Construction of a quadcopter for low latitude vertical profile measurements

12:40–14:00 Sandwich lunch

Eötvös Hall (chair: A. Kárpáti):

- 14:00–14:40 **U. Feudel (Oldenburg, Germany):**
How to get highschool students interested in science: Lessons from the analysis of complex system in nature
- 14:40–15:20 **M. Kos (Ljubljana, Slovenia):**
Doubtology (Science adventure – an interactive talk)

15:20-15:40 Coffee

15:40–17:40 two parallel sessions (6 contributions)

Physics experiments (Eötvös Hall, chair: M. Kos):

- 15:40–16:00 **K. Piláth (Budapest, Hungary)**
Some of my favorite experiments
- 16:00–16:20 **N. Kazachkova (Kharkiv, Ukraine)**
Three stages of the students research skills development at ECYGDA laboratory
- 16:20–16:40 **M. Csatóyová (Prešov, Slovakia)**
Historical experiment using virtual observation
- 16:40–17:00 **D. Kazachkova (Kharkiv, Ukraine)**
Three simple research projects made with household objects and recycled materials
- 17:00–17:20 **D. Lendvai (Budapest, Hungary)**
Pendulum wave, or love at first sight
- 17:20–17:40 **M. Hömöstrej (Budapest, Hungary)**
Benefits of IYPT in the physics education

Informal methods – Inquiry Based Learning (Ortvay Hall, chair: A. Kárpáti):

- 15:40–16:00 **D. Dziob (Krakow, Poland)**
Reasoning quizzes in inquiry-based lessons
- 16:00–16:20 **F. Pols (Delft, The Netherlands)**
Real or fake? What can students learn from debunking Hollywood physics?
- 16:20–16:40 **S. Egri (Debrecen, Hungary)**
Methods for teaching physics according to the curriculum framework "A"
- 16:40–17:00 **I. Ságodi-Dömény (Szekszárd, Hungary)**
Light pollution measurement: a project work for secondary school students
- 17:00–17:20 **I. Szatmáry-Bajkó (Budapest, Hungary)**
Handicraft and aesthetic experience in teaching chaos physics
- 17:20–17:40 **Zs. Vicze (Budapest, Hungary)**
Implementing inquiry in teaching electricity

Tuesday, August 18:

8:00–14:00 Registration

Eötvös Hall (chair: Zs. Fülöp):

9:00–9:40 **D. Featonby (Wylam, England):**

Science on Stage Europe – inspiration for teachers by teachers

9:40–10:20 **Z. Néda (Cluj-Napoca, Romania):**

All-pervading light – or how the kinematic of modern physics is grounded on light

10:20–10:40 Coffee

10:40–12:40 two parallel sessions (6 contributions)

Science Centers (Eötvös Hall, chair: H. Salmi):

10:40–11:00 **J. Tee (Bristol, United Kingdom)**

Teaching physics and astronomy and inspiring further study at the Science Centre At-Bristol, UK

11:00–11:20 **A. Vörös (Cluj-Napoca, Romania)**

Promoting environmental physics issues in science centers and at science-events

11:20–11:40 **E. Stengler (Bristol, United Kingdom)**

What science centres are and aren't good at in supporting education

11:40–12:00 **J. Jaloveczki (Baja, Hungary)**

The motivating role of the full day experimental programme called "Physics show" in teaching physics

12:00–12:20 **P. Mészáros (Győr, Hungary)**

Fire tornado at the Mobilis Science Center

12:20–12:40 **J. Vanyó (Eger, Hungary)**

The Magic Tower of Eger

Socially sensitive issues and complex systems (Ortvay Hall, chair: Gy. Szabó):

10:40–11:00 **D. Featonby (Wylam, England)**

Colour blindness and science – 50 shades of muddy green interspersed with blues and yellows

11:00–11:20 **I. Scheuring (Budapest, Hungary)**

Scientific program in the summer camp "Bátor Tábor"

11:20–11:40 **V. Montalbano (Siena, Italy)**

Energy, food and sustainability

11:40–12:00 **M. Jávör (Budapest, Hungary)**

Decision making in a condominium – an Ising-like sociophysical system

12:00–12:20 **B. Leitner (Nyíregyháza, Hungary)**

Experiences in teaching game theory in the high school

12:20–12:40 **A. M. Tasnádi (Budapest, Hungary)**

From Heat Pumps to Hurricanes: Application of Thermodynamics in Secondary Education

12:40–14:00 Sandwich lunch

Eötvös Hall (chair: P. Jenei):

14:00–14:40 **Gy. Szabó (Budapest, Hungary):**

Game theory in secondary school

14:40–14:50 Pause

14:50–15:50 two parallel sessions (3 contributions)

Environmental issues (Eötvös Hall, chair: M. Vincze):

14:50–15:10 I. Gärtner (Budapest, Hungary)

A few years experience of energy consumption in a high school in Budapest

15:10–15:30 T. Beke (Kalocsa, Hungary)

Simple model for the energy supply of a house using a hybrid wind-solar power system

15:30–15:50 Z. Csernovszky (Budapest, Hungary)

The notion of energy in secondary schools and the experimental examination of photocells and photosynthesis

Multimedia and ICT (Ortvay Hall, chair: P. Jenei):

14:50–15:10 L. Molnár (Filakovo, Slovakia)

Computer based experimentation in secondary grammar school

15:10–15:30 K. Antalné Csorba (Budapest, Hungary)

Data logging in the science laboratory or anywhere else

15:30–15:50 T. Kovács (Budapest, Hungary)

How to merge technology and methodology in science and mathematics education – the GEOMATECH Project

15:50–16:10 Coffee

16:10–18:10 two parallel sessions (6 contributions)

Multimedia and ICT (Eötvös Hall, chair: Z. Neda):

16:10–16:30 Zs. Szigetlaki (Budapest, Hungary)

Computer-aided measurement and simulation in science education

16:30–16:50 T. Tóthné Juhász (Budapest, Hungary)

A computer simulation based teaching experiment

16:50–17:10 A. Struck (Kleve, Germany)

Making and using video introductions for physics lab experiments

17:10–17:30 Cs. Fülöp (Budapest, Hungary)

The sledge project

17:30–17:50 T. Stonawski (Nyíregyháza, Hungary)

New possibilities in physics assignments and in facilitating solutions – the QR Code

17:50–18:10 A. Kárpáti (Budapest, Hungary)

Collaborative, ICTs supported learning solutions for science education based on the SSIBL Framework

Contemporary physics (Ortvay Hall, chair: M. Michelini)

16:10–16:30 C. Angell (Oslo, Norway)

ReleQuant – Improving teaching and learning in modern physics in upper secondary school

16:30–16:50 J. Cserti (Budapest, Hungary)

The beautiful rainbow

16:50–17:10 I. Kuczmann (Budapest, Hungary)

Transformations in physics

17:10–17:30 É. Gócz (Budapest, Hungary)

Simple experiments with semiconductors and LEDs

17:30–17:50 I. Szittyai (Hódmezővásárhely, Hungary)

Speed-mania: measuring velocity in secondary school

17:50–18:10 I. Basa (Budapest, Hungary)

Application of computer simulations in modern physics education

19:00- Gala dinner

Wednesday, August 19:

Eötvös Hall (chair: A. Király):

9:00–9:40 **M. Vincze (Budapest, Hungary):**
Modeling climate change in the laboratory

9:40–9:45 **Pause**

9:45–11:25 two parallel sessions (5 contributions)

Methodological innovations (Eötvös Hall, chair: P. Tasnádi):

9:45–10:05 **S. Prasitpong (Songkhla, Thailand)**
Thai high school students expectations in learning physics in an interdisciplinary Science, Technology, Engineering and Mathematics (STEM) activity

10:05–10:25 **S. Rakkapao (Songkhla, Thailand)**
An item response theory analysis for the test of understanding of vectors (TUV)

10:25–10:45 **Cs. Wiener (Budapest, Hungary)**
On the first-year students of the physics teacher training programme at ELTE

10:45–11:05 **Á. Szeidemann (Tata, Hungary)**
Observation of the drying process in secondary school

11:05–11:25 **Zs. Finta (Szombathely, Hungary)**
Complex students' experiments carried out with the help of a smart phone

Nuclear issues (Ortvay Hall, chair: Á. Horváth):

9:45–10:05 **M. Kiss (Gyöngyös, Hungary)**
Neutron capture nucleosynthesis

10:05–10:25 **G. Fröhlich (Budapest, Hungary)**
Ionizing radiation in medicine – Radiotherapy

10:25–10:45 **Cs. Fülöp (Budapest, Hungary)**
Physics teachers on teaching the radioactive decay law

10:45–11:05 **É. M. Oláh (Budapest, Hungary)**
Let's build particle physics!

11:05–11:25 **P. Palkovics (Eger, Hungary)**
Multidisciplinary teaching of natural radioactivity using the example of Radon

11:25–11:45 **Coffee**

Eötvös Hall (chair: L. Egyed):

11:45–12:25 **A. Aszódi (Budapest, Hungary):**
Nuclear energy – acceptance or rejection

12:25–12:45 **Zs. Fülöp (Debrecen, Hungary):**
Towards edutainment: improving the public acceptance of physics

12:45–13:45 **Round-table** discussion on socially sensitive issues in physics education
(moderator: L. Egyed, participants: A. Aszódi, D Featonby, Zs. Fülöp, M. Kos, H. Salmi)

13:45–13:50 **Closing**

13:50–14:30 **Sandwich lunch**

14:30 (!)- **Excursion to Paks Nuclear Power Plant & surroundings departs**