



# ANNUAL REPORT 2021

## OF

### THE ACADEMIA EUROPAEA BUDAPEST KNOWLEDGE HUB

# INTRODUCTION

**2021 was the first year of the Budapest Hub since its launch on December 9th, 2020.**

To address the ambitious aims the Budapest Hub set itself for the long term, a number of initial steps have been taken in the course of this first year. As a first action, each of the four thematic missions of the Budapest Hub assembled a list of AE members in the region with a potential interest in collaboration with the given thematic mission and reached out to those potential partners in an introductory letter outlining the long-term objectives of the thematic mission concerned. Positive responses, expressing readiness to collaborate, were collected for future reference.

When it came to organization of events in order to introduce the Hub and raise its visibility, regrettably the year was marked throughout by the subsequent waves of the COVID-19 pandemic, keeping in-person attendance at a minimum and online events as the general rule. It was in this setting that the Budapest Hub sought to have a meaningful presence primarily in the online sphere. For some of the envisaged activities, preparations began in the course of the year, in the hope that the following year, 2022, would allow for events and other actions with physical presence. A highlight of the year was the December Board meeting of AE followed by the valedictory lecture of outgoing AE President Sierd Cloetingh, which the Hungarian Academy of Sciences and the AE Budapest Hub was honoured to host.

**The output of the Budapest Hub in 2021 is presented below in the context of its four thematic missions:**

1. *Widening European Participation*
2. *The Danube Region*
3. *Methodology of Science Education and*
4. *Urban Sustainability*

## Widening European Participation thematic mission

*Co-chairs of the thematic mission:*

**Professor Éva Kondorosi**, Member of AE and MTA

**Dr Gergely Toldi**, Alumnus of GYA, Member of HYA

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### AIMS:

- Monitor the growth of AE membership from Danube countries;
- Establish close collaborations with a representative AE member and an early-career researcher from each Danube country;
- Identify the strength of countries and potential common scientific interests (in association with the other three thematic missions of the Hub);
- Involve AE members in mentoring programs;
- Collaborate with other AE Hubs and the Young Academy of Europe

### ACTIVITIES IN 2021

#### Meetings of regional “Widening Partners”

With a view to enhancing the growth of AE membership in the countries of the region, a regional meeting for “Widening Partners” was convened in online format as early as January 29<sup>th</sup> 2021, and a second meeting of the same group – again online – took place towards the end of the year, on December 8<sup>th</sup>. The “Widening Partners”, practically all of them MAEs, who had been invited by Professor Éva Kondorosi, Co-Chair for Widening European Participation, to join this special group, came from the following countries: Slovakia, Romania, Bulgaria, Moldova, Slovenia, Croatia, Serbia, Montenegro and North Macedonia. They accepted to actively contribute to this exercise of monitoring the situation of nominations to AE membership under AE’s nomination cycle in quantitative as well as qualitative terms. The objective of both start-of-year and end-of-year meetings was to identify potential strong candidates for nomination from each country in the region and to recognize the areas of science which had strong representation in these countries.

#### Young Academy of Europe and AE Budapest Hub joint ERC Starting Grant Mentoring Event – November 11, 2021

The online event focused on the ERC Starting Grant evaluation process – on how ERC’s evaluation panels work and how decisions within evaluation panels are taken when it comes to recommending a grant application for funding. The event was designed to offer an important opportunity for early-career ERC applicants to gain key insights into what makes a successful ERC application and a better understanding of the evaluation process. It came as the second edition of a series launched by YAE back in 2020 and attracted a total of 160 participants online. Its Part 1, which was the plenary part, included a presentation from a representative of the ERC Executive Agency (ERCEA), Janka Mátrai and

a presentation from the ERC National Contact Point leader in Hungary, Gergely Bóhm. Part 2 consisted of three parallel sessions: mock evaluation panels in each ERC research domain (Physical Sciences & Engineering (PE), Life Sciences (LS), and Social Sciences & Humanities (SH)) reviewing two examples each of ERC grant applications.

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**11 November 2021 (online)  
14:00 - 16:00 CET**

**Agenda:**

1. Introduction to ERC funding and specific advice for applicants in EU13 and Associated Countries
2. Parallel ERC StG mock evaluation panels by domain (LS, SH, PE)

The event was meant to fit in with the aims of the Widening European Participation thematic mission respectively of involving AE members in mentoring programmes and of forging collaboration with the Young Academy of Europe (YAE).

Another mentoring action, an *ERC Grant Proposal Writing Workshop* as part of the Forum of V4+ Academies in Budapest had been planned to take place in the same month, November, but it had to be postponed due to the COVID situation and has now been re-scheduled for May 2022.

The originally planned one-day, face-to-face workshop had the specific aim of mentoring early-career researchers from the V4+ countries (that is, V4 + Austria and Slovenia) wishing to apply for ERC grants. While retaining this original objective of providing direct practical help to potential ERC applicants, the re-scheduled workshop is going to have an extended focus in order to include, besides individual excellence, the institutional aspect of a successful ERC application.

## Danube Region thematic mission

*Co-chairs of the thematic mission:*

**Professor András Báldi**, Member of AE

**Dr Katalin Solymosi**, Member of YAE and HYA

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### AIMS:

- Facilitate networking and interdisciplinary collaboration between scientists (especially AE and YAE members) working in the Danube region.
- Highlight the natural values of the Danube region from an “artistic” perspective to strengthen the interdisciplinary and “Arts and Science” aspects of the Hub
- Support and involve early-career researchers from the region in the activities of the Hub
- Foster participation of researchers from the region in science policy

### ACTIVITIES IN 2021

#### Facilitate networking and interdisciplinary collaboration

Work started with a compilation of a list of YAE/AE members in the region with potential interest in collaboration within the framework of the Danube Region thematic mission.

Plans were made for an international workshop/conference on the environmental history of the Carpathian basin, with the involvement of the Hungarian researchers Zsolt Pinke and Beatrix Romhányi, but the event later came to be scheduled for the second half of 2022.

#### Highlight the natural values of the Danube region from an “artistic” perspective

With a view to introducing an “Arts and Science” line of activities in the Budapest Hub in order to reach a broader audience with scientific topics related to the Danube river, the idea of a film club series with scientific panel discussion was elaborated and several filmmakers were approached to find out about their – and their films’ – availability for such events.

Zoltán Török (Wildtale Productions), director and writer of “*Wild Hungary – A Water Wonderland*” (2011) and director and co-writer of “*Wild Horses – A Tale from the Puszta*” (2021) was contacted, but collaboration with him had to be postponed due to the pandemic.

Gergely Balázs, director and co-writer of the Hungarian nature documentary “*Operation Mayfly*” (2017) and co-writer Balázs Lerner as well as ecologist György Kriska (ELTE, Centre of Ecological Research), were contacted in order to invite them to offer the English version of “*Operation Mayfly*” as a possible subject of the Hub film club series. As they accepted the invitation, the arrangements for the Hub’s first film club event could kick off before the end of the year and the event came to be scheduled for March 2022.



### Support and involve early-career researchers

The above-mentioned *ERC Starting Grant Mentoring Event* jointly organized by YAE and the AE Budapest Hub (its Widening European Participation thematic mission) on 11 November 2021, had relevance for the Hub's Danube Region thematic mission as well, since Katalin Solymosi, Co-chair of the Danube Region thematic mission and Recruitment Vice-Chair of YAE, was a member of the event's organizing committee and moderated the plenary session of the event.

### Foster participation of researchers from the region in science policy

Preparations started in the autumn of 2021 for a public symposium to be co-organized by the AE Budapest Hub (Danube Region thematic mission) and the European Academies Science Advisory Council's (EASAC) Environment Steering Panel. As András Báldi, Co-chair of the Danube Region thematic mission, is also a member of EASAC's Environment Steering Panel, the Steering Panel accepted the invitation by the Hungarian Academy of Sciences to hold its spring 2022 meeting in Budapest, and the idea was raised to connect this meeting with a public event to be co-organized by EASAC and the Budapest Hub. The topic of the symposium would be EASAC's report on Regenerative Agriculture. The event would include a panel discussion featuring experts who are members of AE.

## Methodology of Science Education thematic mission

*Co-chairs of the thematic mission:*

**Professor Csaba Pléh**, Member of AE and MTA

**Dr Eszter Gselmann**, Member of HYA

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### AIMS:

- Develop and promote new methodologies in science education to help the transfer of scientific knowledge at all stages of education, from primary school to university science curricula.
- Identify the new challenges of distance education, brought to the forefront by the COVID pandemic.
- Contribute to more social and gender equality in access to science education and STEM careers.

### ACTIVITIES IN 2021

#### Fact-finding in the first half of 2021

Within the framework of the introduction of this thematic mission to national academies and the other AE hubs, an email survey was designed to collect data about science education in national educational programmes and data on innovative programmes in science education. Data collection is supposed to be ongoing and, based on a thorough analysis, it is supposed to inform the future actions of the Methodology of Science Education thematic mission.

This thematic mission managed to organize two workshops in 2021: one with online participation on March 26, and another one with in-person attendance on October 21. The March workshop was held in English and had an international audience, while the October workshop, held in Hungarian, was addressed to a Hungarian audience of science education experts.

Entitled *“Every Cloud Has a Silver Lining - Experiences and Prospects of online STEM education in the light of the pandemic”*, the March workshop addressed challenges of education and research as they had been transferred to the virtual space due to the pandemic. The event was hosted and moderated by Professor Csaba Pléh and Dr Eszter Gselmann, the Hub's Co-Chairs responsible for this thematic mission. The lecturers were:

- Zsolt Lavicza (Linz School of Education, Linz, Austria): *“Utilising Technologies to Nurture Creativities in STEM Education”*

- Iulia Savos (CEU Babylab, Budapest, Hungary): *“Possibilities and Limitations of Online Infant Studies”*
- Dénes Szűcs (University of Cambridge, UK): *“Math Anxiety”*

The October workshop, addressing a Hungarian audience, was entitled *“Current Issues of Learning and Teaching STEM”*. It was co-organized with MTA’s Presidential Committee for Public Education. Moderators of the event were: Eszter Gselmann, Co-chair of the Budapest Hub’s Methodology of Science Education thematic mission and Benő Csapó, Chair of MTA’s Presidential Committee for Public Education.

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**A STEM tanításának és tanulásának aktuális kérdései**

Workshop  
az Academia Europaea Budapest Knowledge Hub "Methodology of Science Education" elnevezésű tematikus missziója és az MTA Közoktatási Elnöki Bizottsága szervezésében

**2021. október 21., 10:00**  
**MTA Székház Felolvasóterem**

10:00-10:10 **Megnyitó**

**Tudományos előadások (levezető elnök: Gselmann Eszter)**

10:10-10:30 **Csapó Benő: A természettudomány diagnosztikus értékelésének tartalmi keretel**  
10:30-10:40 Kérdések és válaszok

10:40-11:00 **Korom Erzsébet: A természettudomány tanulása kisiskolás korban**  
11:00-11:10 Kérdések és válaszok

11:10-11:30 **Szalay Luca: Kutatásalapú kémia tanítás**  
11:30-11:40 Kérdések és válaszok

11:40-12:00 Kövészet

12:00-12:20 **B. Németh Mária: Természettudományok tanulásának motivációi**  
12:20-12:30 Kérdések és válaszok

12:30-12:50 **Tóth Zoltán: A természettudományos fogalmak fejlesztésének kritikus pontjai**  
12:50-13:00 Kérdések és válaszok

13:00-14:00 **Vitaforum (levezető elnök: Csapó Benő)**

The lecturers of the event were all Hungarian education experts:

- Benő Csapó (University of Szeged): *“Diagnostic Testing in Science Education”*
- Erzsébet Korom (University of Szeged): *“Learning Science in Elementary Schools”*
- Luca Szalay (Eötvös Loránd University): *“Research-based Teaching of Chemistry”*
- Mária B. Németh (University of Szeged): *“Motivation Issues in Science Learning”*
- Zoltán Tóth (University of Debrecen): *“Critical Points in the Elaboration of Definitions in Science for Teaching Purposes”*

## Urban Sustainability thematic mission

*Co-chairs of the thematic mission:*

**Professor Gábor Stépán**, Member of AE and MTA

**Professor Péter Török**, Member of YAE and HYA

### AIMS:

- Discuss historical drivers, special opportunities and challenges of urban sustainability in the Visegrad countries and other parts of Central Europe;
- Integrate and assess the specific sets of goal functions and constraints used by the different research areas related to urban sustainability;
- Define the possible synergies and unavoidable trade-offs while entering the era of smart cities, digital transportation systems, and clean energy;
- Organize thematic regional workshops and public lectures in urban sustainability;
- Develop regular and European-wide knowledge exchange and transfer in urban sustainability with the involvement of other AE Hubs.

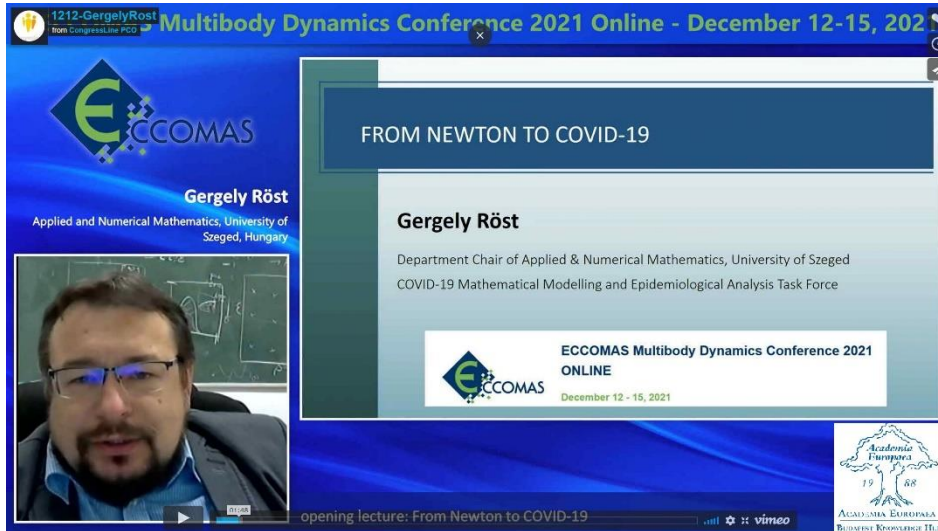
### ACTIVITIES IN 2021

#### 2nd Hungarian Urban Ecological Conference

The 2nd Hungarian Urban Ecological Conference was held on October 14 and 15, 2021, at the Management Campus of Széchenyi István University in Győr, Hungary. One of the invited plenary speakers, Dr Valentin Klaus (ETH Zurich) gave a great opening plenary with the title: *“Using the Biodiversity Potential of Urban Grasslands: Options and Limitations of Nature Conservation Efforts in Cities”*. His participation at the conference was funded by the AE Budapest Hub.

## Public lecture on December 12, 2021

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As part of the ECCOMAS Multibody Dynamics Conference 2021, organized by the Budapest University of Technology and Economics on December 12-15, the lecture *"From Newton to COVID-19"* was delivered at the opening ceremony by Dr Gergely Röst, Department Chair of Applied and Numerical Mathematics at the University of Szeged, and Head of the COVID-19 Epidemiological Analysis and Modelling Response Team coordinated by the Ministry of Innovation and Technology in Hungary, who was a special guest of the conference.

Through his lecture, participants could formulate a view on the mathematical modelling of epidemics including historical aspects. This contribution was also meant as an introduction to a future workshop on agent base modelling of the epidemic at city-scale. Dr Röst's lecture was sponsored by the AE Budapest Hub.

## Finance:

Under the Collaboration Agreement between Academia Europaea and the Hungarian Academy of Sciences, the latter provides the administrative services required for the operation of the Hub, including personnel costs, and the defined annual funding to support the Hub activities.

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## AE Budapest Hub staff:

*László Lovász*, Academic Director

*Gergely Böhm*, Hub Manager

*Katalin Borvölgyi*, Hub Officer

### Co-chairs of the thematic missions:

*Éva Kondorosi and Gergely Toldi*: Widening European Participation

*András Báldi and Katalin Solymosi*: The Danube Region

*Csaba Pléh and Eszter Gselmann*: Methodology of Science Education

*Gábor Stépán and Péter Török*: Urban Sustainability

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### About Academia Europaea

Founded in 1988. Now has more than 4500 leading scientists and scholars as members, including over 70 Nobel laureates. Operates through a network of knowledge hubs in Barcelona, Bergen, Budapest, Cardiff, Munich, Tbilisi and Wrocław.