



H²⁰²⁴-SPACE

8TH INTERNATIONAL CONFERENCE
ON RESEARCH, TECHNOLOGY AND EDUCATION OF SPACE



FINAL PROGRAM H-SPACE 2024, April 25-26, 2024

as of April 24, 2024

Website: <https://space.bme.hu>

Day 1, April 25

(hybrid: presenters in person in Budapest, participants in person and online)

Building I, room IB.027

Budapest University of Technology and Economics

Magyar tudósok krt. 2, H-1117, Budapest, Hungary

13:15 Onsite registration is open

14:00 Opening of the conference

Master of ceremony: *László Baczárdi, Budapest University of Technology and Economics*

Hassan Charaf

Dean, BME Faculty of Electrical Engineering and Informatics

Orsolya Ferencz

Ministerial Commissioner for Space Research, Ministry of Foreign Affairs and Trade

Kálmán Kovács

President, Hungarian Astronautical Society

14:20 Keynote 1

Jaan Praks

Small satellites - Finnish road from education to science and business

Aalto University, Finland

14:50 Keynote 2

Caius Reza

PocketQubes: A New Frontier in Space Education

Alba Orbital, Glasgow, United Kingdom

15:20 Poster highlight talks

16:00 Coffee break and poster session

16:45 Session Science and Technology 1

12 min talk + 3 min Q&A

Session Chair: *Lóránt Földváry, Budapest University of Technology and Economics*

Talk 1

Péter Vári

The future of satellite frequency usage satellite agenda items for WRC-23 and WRC-27

National Media and Infocommunication Authority, Budapest, Hungary

Talk 2

Ákos Kereszturi

Hungarian participation in the Comet Interceptor mission

Konkoly Observatory, HUN-REN Research Centre for Astronomy and Earth Sciences, Budapest, Hungary

Talk 3

Judit Fogasy

Radio interferometric observations of the JUICE spacecraft en route to Jupiter

Konkoly Observatory, HUN-REN Research Centre for Astronomy and Earth Sciences, Hungary

Talk 4

Sara Sanchis Climent

SPECTRE, a self-deploying bi-stable composite tape-spring mechanism for future nanosatellite missions

KTH, Royal Institute of Technology, Stockholm, Sweden

Talk 5

Laura Bettiol

FOTEC's Testing and Qualification Capabilities for Small Satellites

FOTEC Forschungs-und Technologietransfer GmbH, Wiener Neustadt, Austria

Talk 6

Zoltán Tóth

Thermal performance characterization of battery insulation on ATL-1 picosatellite mission

H-ION Research, Development and Innovation Ltd., Budapest, Hungary

Talk 7

András Pál

Fast and flexible developments of digital logics: applications in the first Hungarian astrophysical satellite, GRBA1alpha

Konkoly Observatory, HUN-REN Research Centre for Astronomy and Earth Sciences, Budapest, Hungary

Talk 8

Máté Galambos

Testing remote clock synchronization with GPSDO-s and a free space laser communication system

Budapest University of Technology and Economics, Hungary

18:45 Wrap up of the first day - by László Baczárdi

Day 2, April 26

(full online, via Microsoft Teams)

9:00 **Welcome of the second day - by László Bacsárdi**

9:05 **Highlight talk** Pál Gábor Vizi Hungarian participation in the European Space Agency's JUICE (Jupiter Icy Moons Explorer) mission
HUN-REN Centre for Energy Research, Budapest, Hungary

9:30 **Session Science and Technology 2** 12 min talk + 3 min Q&A

Session chair: Kálmán Kovács, Hungarian Astronomical Society

Talk 1 Árpád Kis The Space Weather Monitoring and Data Service at HUN-REN Institute of Earth Physics and Space Science (EPSS)

HUN-REN Institute of Earth Physics and Space Science, Sopron, Hungary

Talk 2 Péter Pataki Reproduction of the Lunar Radar experiment failure and success during implementation

Széchenyi István University, Győr, Hungary

Talk 3 Joel Eldo Review of Lagrangian Points and Scope of Stationary Satellites

Amity University Dubai, UAE

Talk 4 Mohammed Vaseeq H. Kh Space Debris: Overview and Mitigation Strategies

Amity University Dubai, UAE

Talk 5 Vince Molnár The Expected Impact of SysML v2 to Cooperation in the Space Sector

Budapest University of Technology and Economics, Hungary

Talk 6 Tibor Hegedüs EON: The first year of the re-started optical tracking of artificial satellites at Baja

Baja Observatory of the University of Szeged, Baja, Hungary

Talk 7 Rhea Ranjit Mulki Study of Microwave Electrothermal Propulsion System

University of Southern California, Los Angeles, USA

Talk 8 András Illyés Aether S, a Student-Developed Supersonic Sounding Rocket as a Carrier for Scientific Payloads

BME Aerospace Team, Hungary

Talk 9 Péter Farkas Assessing Natural and Anthropogenic Ground Deformation Using Sentinel-1 PSI in the Region of Cluj-

Napoca, Romania

Geo-Sentinel Kft., Göd, Hungary

11:45 **Highlight talk** Christina Giannopapa Innovation at the European Union Agency for Space Programme
European Union Agency for Space Programme (EUSPA)

12:05 **Lunch break**

13:15 **Opening of the afternoon session**

13:20 **Invited talk** István Arnócz Educational and incubation practices in the emerging space - an association perspective

Hungarian Astronomical Society, Budapest, Hungary

13:40 **Session Education and Outreach** 12 min talk + 3 min Q&A

Session chair: Dorottya Milánkovich, Hungarian Astronomical Society

Talk 1 Don Koulaouzos Assessment of Cooperation in the Space Sector

Skytrek Ltd, London, United Kingdom

Talk 2 Jasminka Matevska Engineering and Management of Space Systems (EMSS) - an International Joint Master's Double-

Degree Programme

City University of Applied Sciences, Bremen, Germany

Talk 3 Annamária Komáromi Space Science in the Classroom

Balassi Bálint Eight Grade Secondary Grammar School, Hungary

Talk 4 Bence Csaba Kováts The educational and awareness-raising activities of BME Suborbitals

Budapest University of Technology and Economics, Hungary

Talk 5 Szilárd Takács Introduction of space science in higher education: space science in BSc engineering

Széchenyi István University, Győr, Hungary

15:00 **Closing of the conference**

Poster presentations

Poster 1	Panta Sasikanth <i>N.B.K.R Institute of Science and Technology, Nellore, India</i>	Probing Low Mass Neutrinos in Gravitational Wave Environments: A Novel Approach with Feynman Diagrams & Applications In Space Sciences
Poster 2	András Mihály <i>Budapest University of Technology and Economics, Hungary</i>	Fast Routing in Entanglement-based Satellite Networks
Poster 3	Orsolya Meier <i>University of Debrecen, Debrecen, Hungary</i>	Circular food production in space environment – Insect protein production by supplementing green biomass in feed
Poster 4	Anna Fehér <i>Budapest University of Technology and Economics, Hungary</i>	Thermal properties of heterogeneous materials using extended heat equations
Poster 5	Ákos Kereszturi <i>Konkoly Observatory, HUN-REN Research Centre for Astronomy and Earth Sciences, Budapest, Hungary</i>	Spectral instrument optimization for asteroid missions by space weathering simulation
Poster 6	Bence Takács <i>Budapest University of Technology and Economics, Hungary</i>	RTK GNSS monitoring under high ionospheric activity
Poster 7	Máté Kreizinger <i>Eötvös Loránd University, Budapest, Hungary</i>	High-redshift radio quasars from ground and space
Poster 8	Kinga Tamási <i>Ludovika University of Public Service, Budapest, Hungary</i>	Investigation of Glass-foam systems as Insulation materials for Space applications
Poster 9	Gergő Mezőhegyi <i>C3S Electronics Development LLC., Budapest, Hungary</i>	MAUVE – UV-Vis Spectroscopy of Stars by a 16U CubeSat
Poster 10	Kitti A. Berényi <i>ELKH-ELTE Space Research Group, Budapest, Hungary</i>	Comprehensive analysis of the ionospheric response to the largest geomagnetic storms from solar cycle 24 over Europe
Poster 11	Hanga Katreiner <i>Technische Universität Berlin, Berlin, Germany</i>	Proposal Of A Hybrid CSNN-PSO Algorithm For Improving Space Debris Identification And Classification
Poster 12	Pál Gábor Vizi <i>HUN-REN Centre for Energy Research, Budapest, Hungary</i>	Transparent Planetary Polished Thin Section Rock Sample Maker for Hungarian Hunveyor Educational Space Probe
Poster 13	János Gaskó <i>Budapest University of Technology and Economics, Hungary</i>	Remote sensing of hydrological parameters by GNSS reflectometry
Poster 14	Richárd Krisztián Tomka <i>Konkoly Observatory, HUN-REN Research Centre for Astronomy and Earth Sciences, Budapest, Hungary</i>	Development of GIS software based spatial ejecta estimation algorithm to support the NASA-ESA Artemis program
Poster 15	Péter Püspöki <i>Budapest University of Technology and Economics, Hungary</i>	Distributed Intelligence and Sensor Network in the Power Systems of MRC-100 Satellite
Poster 16	Kitti A. Berényi <i>ELKH-ELTE Space Research Group, Budapest, Hungary</i>	The Hungarian contribution to the T-FORS Horizon Europe project
Poster 17	László Csurgai-Horváth <i>Budapest University of Technology and Economics, Hungary</i>	Application of Rain Sensor Device in Reliable Attenuation Statistics Calculations on Satellite and Terrestrial Radio Connections
Poster 18	Máté Szarka <i>HUN-REN Institute for Nuclear Research</i>	Simulating Solar Particle Events: New advances in Proton irradiation techniques for biological samples at ATOMKI
Poster 19	Bence Csaba Kovács <i>Budapest University of Technology and Economics, Hungary</i>	Radiation characteristics measurement on a sounding rocket near the Kármán line
Poster 20	Bernhard Seifert <i>FOTEC Forschungs- und Technologietransfer GmbH, Wiener Neustadt, Austria</i>	CubeSim - A Simulation Framework for small Satellites
Poster 21	Vilmos Steinmann <i>Konkoly Observatory, HUN-REN Research Centre for Astronomy and Earth Sciences, Budapest, Hungary</i>	An event-based hydrological model for arid/hyper-arid and Martian environments
Poster 22	Kitti Oláh <i>Budapest University of Technology and Economics, Hungary</i>	The role of entanglement in the development of satellite-based quantum internet
Poster 23	Ádám Dobay <i>Budapest University of Technology and Economics, Hungary</i>	Preliminary design of payload for sounding rockets
Poster 24	Gergely Márk Tölgyesi <i>Budapest University of Technology and Economics, Hungary</i>	Fuel consumption optimization for suborbital solid fuelled rocket engines
Poster 25	Márton Kulcsár <i>Budapest University of Technology and Economics, Hungary</i>	Numerical investigation of the spanwise mean velocity gradient method for transition delay
Poster 26	Katherine Cazco <i>Széchenyi István University, Győr, Hungary</i>	Radiocommunications with the International Space Station (ISS)
Poster 27	Anna Pántya <i>HUN-REN Centre for Energy Research, Budapest, Hungary</i>	Class-Space: From the classroom to space!
Poster 28	Bence Kertész <i>Ludovika University of Public Service, Budapest, Hungary</i>	The perspective of launch capacity and strategic sovereignty of European space activity
Poster 29	Tibor Hegedüs <i>Baja Observatory of the University of Szeged, Baja, Hungary</i>	Space Awareness: latest fireball events and the independent allsky7/8 network of Hungary
Poster 30	Benedikta Rédling <i>Széchenyi István University, Győr, Hungary</i>	Data processing from weather satellites
Poster 31	Barnabás Zoltán Baranyai <i>Széchenyi István University, Győr, Hungary</i>	The first module in space by SZESAT
Poster 32	Dóra Borbála Kovács <i>Budapest University of Technology and Economics, Hungary</i>	Daytime Optical Background Radiation