



Romanian Academy, Astronomical Institute, Cluj-Napoca Branch



Romanian Academy, Astronomical Institute, Bucharest



Faculty of Mathematics and Computer Science, “Babeş-Bolyai” University Cluj-Napoca



National Romanian Committee for Astronomy

8th International Conference in Astronomy, Astrophysics, Space and Planetary Sciences

02-04 July 2025

Cluj-Napoca, Ciresilor Street no. 19

Wednesday July 2nd 2025

09:00 Registration

09:45-11:00 Session – chair Vlad Turcu

09:45-10:00 Conference Opening

10:00-10:30 Tiberiu Harko

The Adomian Decomposition Method, and its applications in astronomy and astrophysics

Department of Physics, Babes-Bolyai University, 1 Kogalniceanu Street, Cluj-Napoca, Romania

10:30-11:00 Bence Juhász, László Árpád Gergely

On Hamiltonian formulations of the Dirac system

Department of Theoretical Physics, University of Szeged, Hungary

11:00-11:30 Coffee break

11:30-13:00 Session – chair Tiberiu Harko

11:30-12:00 Ruxandra Toma¹, Ovidiu Vaduvescu², Victoria Pinter³

Properties of Dwarf Galaxies

¹Astronomical Institute, University of Craiova, Romania

²University of Craiova, Romania

³Centro Astronómico Hispano en Andalucía, Observatorio de Calar Alto, Spain

12:00-12:30 Cristian Danescu, Mark Rushton

Observation campaign to recurrent novae and some preliminary results

Astronomical Institute of the Romanian Academy

12:30-13:00 Kata Karácsonyi¹, Cirok Balázs¹, Isaac Chun Fung Wong², László Á. Gergely^{1,3}

Investigation of gravitational wave polarizations through detector network measurement

¹Department of Theoretical Physics, University of Szeged, Hungary

²Department of Physics, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

³Department of Theoretical Physics, HUN-REN Wigner RCP

13:00-16:00 Lunch

16:00-18:30 Session – chair Mihai Barbosu

16:00-16:30 Richárd Tamás Varga¹, Emma Kun^{2,3}, László Árpád Gergely^{1,4}

Gravitational Waves from Pulsar Timing

¹Department of Theoretical Physics, University of Szeged, Hungary

²Institute for Theoretical Physics IV, Ruhr University Bochum

³Astronomical Institute, Ruhr University Bochum

⁴Department of Theoretical Physics, HUN-REN Wigner RCP

16:30-17:00 László Árpád Gergely

Exact Kerr-Schild spacetimes from linearized kinetic gravity braiding

Department of Theoretical Physics, University of Szeged, Hungary

Department of Theoretical Physics, HUN-REN Wigner RCP

17:00-17:30 Teodora Matei^{1,2}, Cristian Croitoru³, Tiberiu Harko^{1,2}

Constraining the evolution of a Warm Inflationary Universe with Boundary

¹Department of Physics, Babes-Bolyai University, Cluj-Napoca

²Astronomical Observatory Cluj-Napoca, Romanian Academy

³Department of Computer Science and Automation, Technical University of Cluj-Napoca

17:30-18:00 Himanshu Chaudhary

Constraining the Cosmos: MCMC Methods in Action: A Practical Guide to Constraining Cosmological Models Using SimpleMC

Department of Physics, Babes-Bolyai University, Cluj-Napoca

18:00-18:30 Ghulam Mustafa (online)

Compact stars

Department of Physics, Zhejiang Normal University

18:30-20:00 Coffee Break & Poster Session

20:00 Conference Dinner

Thursday July 3rd 2025

09:00 Registration

09:30-11:00 Session – chair Alexandru Pop

09:30-10:00 Octavian Postavaru¹, Marian Craciun²

Mechanisms behind gamma-ray burst generation in supernova events

¹CITI-UPB

²IFIN-HH

10:00-10:30 Tegze Tordai¹, David Hobill², László Á. Gergely^{1,3}

Image formation in weak gravitational lensing by compact objects of Einstein–Maxwell and Einstein–Born–Infeld theory with electric charge and magnetic dipole

¹Department of Theoretical Physics, University of Szeged, Hungary

²Department of Physics and Astronomy, University of Calgary

³Department of Theoretical Physics, HUN-REN Wigner RCP

10:30-11:00 Maria Craciun¹, Tiberiu Harko²

General relativistic effects in Bose-Einstein Condensate dark matter halos, and their observational testing via the galactic rotation curves

¹‘T. Popoviciu’ Institute of Numerical Analysis, Romanian Academy, Cluj-Napoca, Romania

²Department of Physics, Babes-Bolyai University, Cluj-Napoca

11:00-11:30 Coffee Break

11:30-13:30 Session – chair Tamas Borkovits

11:30-12:00 Adrian Sabin Popescu

A "new" danger from space for life on Earth and humanity: Magnetic excursions and magnetic field reversals

Astronomical Institute of the Romanian Academy, Romania

12:00-12:30 Mirel Birlan^{1,2}, Adrian Sonka¹, Simon Anghel^{1,2}, Antonella Barucci³, Cristian Omat¹, Sonia Fornasier³, Marcello Fulchignoni²

Near-Earth Asteroids colors in two European projects: NEOROCKS and NEOPOPS

¹Astronomical Institute of the Romanian Academy

²LTE, Observatoire de Paris, France

³LIRA, Observatoire de Paris-Meudon, France

12:30-13:00 Mihai Barbosu¹, Vlad Turcu², Tamas Wiandt¹, Radu Dănescu³, Dan Moldovan²

Orbit Determination of Highly Eccentric Satellites Using Ground-Based Optical Observations

¹Rochester Institute of Technology (RIT), 1 Lomb Memorial Dr, Rochester, NY, 14623 USA

²Romanian Academy Cluj-Napoca Branch, Astronomical Observatory Cluj-Napoca, Astronomical Institute of the Romanian Academy, Str. Ciresilor 19, Cluj-Napoca, 400487, Romania

³Technical University of Cluj-Napoca, Computer Science Department Str. Memorandumului 28, Cluj-Napoca, 400114, Romania

13:00-16:00 Lunch

16:00-18:30 Session – chair Mirel Birlan

16:00-16:30 T. Borkovits^{1,2}, S.A. Rappaport^{2,3}, T. Mitnyan², I.B. Bíró^{1,2}

Study of new, TESS-discovered ultra compact hierarchical triply eclipsing triple stars

¹Baja Observatory

²HUN-REN-SZTE Stellar Astrophysics Research Group

³M.I.T. Kavli Institute

16:30-17:00 Alexandru Pop¹, Maria Craciun²

On the importance of estimation of statistical significance of spectral features in amplitude spectra of astronomical time series

¹Romanian Academy Cluj-Napoca Branch, Astronomical Observatory Cluj-Napoca

²‘T. Popoviciu’ Institute of Numerical Analysis, Romanian Academy, Cluj-Napoca, Romania

17:00-17:30 Aurelia PASCUT¹, John P. HUGHES², Rubens MACHADO³, Richards P. ALBUQUERQUE³,

Gastao. B. LIMA NETO⁴

What Happens When Galaxy Clusters Collide? A Closer Look at AS0592

¹Faculty of Electrical Engineering and Computer Science, Stephen the Great University, Suceava, Romania

²Department of Physics and Astronomy, Rutgers University, 136 Frelinghuysen Road, Piscataway, NJ 08854-8019, USA

³Departamento Academico de Fisica, Universidade Tecnologica Federal do Parana, Av. Sete de Setembro 3165, Curitiba, PR, Brazil

⁴Instituto de Astronomia, Geofísica e Ciências Atmosféricas, Universidade de São Paulo, Rua do Matão 1226, São Paulo/SP, Brazil

17:30-18:00 Cristian Croitoru¹, Teodora Matei²
Odette: C++ program for orbit determination

¹Department of Computer Science and Automation, Technical University of Cluj Napoca

²Department of Physics, Babes Bolyai University

18:00-18:30 Farruh Atamurotov
Astrophysical Processes Around Black Hole
Inha University in Tashkent

18:30-20:00 Coffee Break & Poster Session

20:00 Dinner

Friday July 4th 2025

09:00 Registration

09:30-11:00 Session – chair Iharka Szücs-Csillik

09:30-10:00 Cristina Blaga, Paul Blaga

Elvira Botez - A Life Dedicated to Astronomy and History of Sciences

Department of Mathematics, Babeş-Bolyai University, Romania

10:00-10:30 Gheorghe Lucian Pascut

Numerical Methods Beyond Density Functional Theory for Predicting Molecular Properties

MANSiD Research Center

Faculty of Forestry, Stefan Cel Mare University (USV), Suceava 720229, Romania

10:30-11:00 Mirel Birlan, Diana Besliu-Ionescu

The Romanian Astronomical Journal – Highlights

Astronomical Institute of the Romanian Academy

11:00-11:30 Coffee Break

11:30-13:00 Session – chair Cristina Blaga

11:30-12:00 Mirel Birlan¹, Ana Naghi, Sorin Marin¹, Carmen Busu, Iharka Szucs-Csillik³, Alain

Doressoundiram⁴, Gustavo Rojas⁵, Mimoza Hafizi⁶, Francoise Roques⁴

Romanian partnership to Erasmus+ Exo4Edu project

¹Astronomical Institute of the Romanian Academy

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³Astronomical Institute, Romanian Academy Cluj-Napoca Branch

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12:00-12:30 Tudoran Cristian Daniel¹, Smădu Emanuela-Maria², Ciceo Tania-Flavia²

Arcjet Thruster in Electrothermal Space Propulsion

¹Department of Materials, Energy and Advanced Technologies, ITIM, Romania

²Department of Physics, Babeş-Bolyai University, Romania

12:30-13:00 Ulpia-Elena Botezatu (online)

Dark and Quiet Skies for Science and Society

Romanian Space Agency

UN Committee on the Peaceful Uses of Outer Space

13:00-13:30 Conference concluding remarks

Poster Contributions

The regularization of a particular four-body problem

Iharka Szücs-Csillik

Romanian Academy, Astronomical Institute, Astronomical Observatory Cluj-Napoca

Archaeoastronomical investigations at Gura Haitii

Iharka Szücs-Csillik

Romanian Academy, Astronomical Institute, Astronomical Observatory Cluj-Napoca

Terrella: A New Sundial Project at the Astronomical Observatory Cluj-Napoca

Iharka Szücs-Csillik¹, Tamás Scheffler²

¹Romanian Academy, Astronomical Institute, Astronomical Observatory Cluj-Napoca

²Babes-Bolyai University, Faculty of Mathematics and Computer Science, Department of Mathematics

How can we effectively evaluate a reentry forecast to ensure its accuracy and reliability?

Szücs-Csillik, I.¹, De Cicco, M.², Turcu, V.¹

¹Romanian Academy, Astronomical Institute, Astronomical Observatory Cluj-Napoca

²INMETRO, Brazil; Observatório Nacional, Rio de Janeiro, Brazil; Exoss project, press.org.exoss

The magnetic topology and velocity fields of solar active region NOAA 13590

Liliana Dumitru, Cristian Adrian Danescu, Octavian Blagoi

Astronomical Institute of Romanian Academy

The new solar observatory at General Berthelot

Octavian Blagoi, Cristian Adrian Danescu, Liliana Dumitru

Astronomical Institute of Romanian Academy

Study of the velocity field in solar active region, using data acquired by the Berthelot Solar Observatory

Liliana Dumitru, Diana Besliu-Ionescu, Octavian Blagoi, Cristian Adrian Danescu

Astronomical Institute of Romanian Academy

How far do Earth's manifolds stretch?

Nataša Todorović

Astronomical Observatory Belgrade, Serbia

Star formation from the perspective of the X-ray binary population in Nearby Galaxies

Dana Ficut-Vicas

Romanian Academy, Astronomical Institute, Astronomical Observatory Cluj-Napoca

Adaptive supervised learning pipeline for maneuver detection in GEO using TLE time series

Violeta Poenaru¹, Vlad Turcu ²

¹Romanian Space Agency, București, Romania

²Romanian Academy Cluj-Napoca Branch, Astronomical Observatory Cluj-Napoca, Astronomical Institute of the Romanian Academy

Some results and experiences of the Hungarian participation in the 2022-2025 years period of "EON" satellite and space debris optical tracking project

Hegedüs Tibor ^{1,2}, Jäger Zoltán ¹, Kereszty Zsolt ², Stefania Wolf ^{2,3}

¹Baja Observatory of the University of Szeged

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