



Centrum Fizyki Teoretycznej

Polskiej Akademii Nauk

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## The annual reporting session of the Center for Theoretical Physics PAS for 2025

March 20, 2026

Onsite: The Institute of Physics PAS  
(L. Sosnowski Auditory)  
al. Lotników 32/46 , Warszawa

Zoom:

<https://us06web.zoom.us/j/82669141095?pwd=rrrlObXPvqi4QLbot5Lv2CCoaKstaf.1>

**10:00 Start (with coffee)**

**10:00 – 13:15 Short talks (hybrid)**

10:00 Topic 1: **M. Korzyński**, *Looking for large-scale motions in the Gaia data*

10:15 Topic 2: **K. Życzkowski**, *Nonunitary evolution of quantum systems and the 3-cube of Bronstein*

10:30 Topic 3: **K. Pawłowski**, *Dipolar many-body system in quasi 1D*

10:45 Topic 4: **B. Czerny**, *Black holes as sources of knowledge about the Universe - first determination of the Hubble constant from continuum time delays in an Active Galactic Nucleus*

11:00 Topic 5: **L. Mankiewicz**, *Physics Education 2.0: Primary Schools in the Age of AI*

11:15 Topic 6: **P. Nurowski**, *The Beltrami-de Sitter Model*

**11:30 – 12:00 Coffee break**

12:00 Topic 7: **O. Reardon-Leaman**, *Classical simulation of free-fermionic dynamics and quantum chemistry with magic input*

12:15 Topic 8: **R. Augusiak**, *All genuinely entangled stabilizer subspaces are multipartite fully nonlocal*

12:30 Topic 9: **W. Hellwing**, *A new method to use galaxy clustering data for constraining dark matter and dark energy theories*

12:45 Topic 10: **J. Korbicz**, *Teleportations under decoherence*

13:00 Topic 11: **M. Matuszewski**, *Exciton-polariton neural networks*

**13:15 Summary (hybrid)**

**13:35 Poster session with food (only onsite)**



Center for Theoretical Physics

Polish Academy of Sciences

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## POSTERS

1. *Self-testing Slater states*, **A. Konderak**, W. Bruzda, R. Augusiak.
2. *Local content of qubits under generalized measurements*, **A. Konderak**, M. Renner, R. Augusiak.
3. *The Origin of Heavy Elements in the Universe: Insights from GRMHD Simulations of Accretion-Disk Outflows*, **J. Saji**, A. Janiuk, G. Urrutia.
4. *Breaking pair conservation: Mergers in the BBGKY hierarchy*, A. Taverna, M. Jaber, **R. Strid**.
5. *X-ray Irradiation affecting the Unstable Black hole Accretion disks*, **P. Ojha**, A. Janiuk, F. Vincentelli, Y. Cavecchi.
6. *The cosmic web of the local universe*, **M. Jaber**, O. Newton, A. Taverna.
7. *Analytical results for the statistics of the ideal Bose gas in different statistical ensembles*, **S. Augustynowicz**, K. Pawłowski, J. Okoński, K. Rzążewski.
8. *Vortices in the Many-Body Excited States of Interacting Bosons in Two Dimension*, **M. Ślusarczyk**, K. Pawłowski.
9. *Pairwise Velocities as a Cosmological Probe*, M. Jaber, R. Strid, **A. Taverna**.
10. *Three-dimensional GRMHD simulations of jet formation and propagation in self-gravitating collapsing stars*, **P. Płonka**, A. Janiuk.
11. *HARM-COMBO: Development and performance tests of the hybrid (MPI+OpenMP) GRMHD code*, **Ł. Klepczarek**, A. Janiuk, P. Płonka.