CAMK annual meeting

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AstroCeNT

CAMK PAN
Feb 05, 2026

ASTROCENT

European Funds Smart Growth
Republic of Poland
FNP Foundation for Polish Science
European Union European Regional Development Fund

Research activities

I joined Astrocent in September 2025.

Research topics: **(astro)particle physics, particle cosmology, dark matter (theory)**

Research papers & preprints:

- *A solution to the S8 tension through neutrino-dark matter interactions*, L. Zu,W. Giare,C. Zhang,E. Di Valentino, Y.-L. S. Tsai, ST, Nat Astron. (2026)
- *Cosmological impact of vDM interactions enhanced in narrow redshift ranges*, ST, L. Zu, arXiv: 2505.20396
- *Flavor blocking of dark matter thermalization in neutron stars*, H. Davoudiasl, J. Hoefken Zink, arXiv: ST, 2511.05651

General aim: try to find novel signals of dark matter, including astrophysical and cosmological probes
& explore the interplay between different searches to fully probe the thermal DM production paradigm (WIMP generalizations, freeze out)

EuCAPT – CAMK JOINED IN OCTOBER

The European Consortium for Astroparticle Theory

https://www.eucapt.org/

The **European Consortium for Astroparticle Theory** (EuCAPT) aims to bring together the European community of theoretical astroparticle physicists and cosmologists.

Our goals are:

- *to increase the exchange of ideas and knowledge;*
- *to coordinate scientific and training activities;*
- *to help scientists attract adequate resources for their projects;*
- *to promote a stimulating, fair and open environment in which young scientists can thrive.*

CAMK joined as a part of a consortium of several institutes
(with NCBJ, CFT PAN, IFJ PAN, IPPT PAN)

Not a formal collaboration – rather a bottom-up initiative to help defining a community consensus about essential challenges and opportunities in the field

Open to scientists at all stages of career – exchange and networking opportunities

EuCAPT TOPICS

The material is organised around 10 themes of research, each of them coordinated by 2 or 3 scientists:

- **Astrostatistics:** Christoph Weniger, Roberto Trotta
- **Dark Matter:** Francesca Calore, David J. E. Marsh, Chris Byrnes
- **Dark Energy:** Alessandra Silvestri, Julien Lesgourgues
- **Cosmic accelerators:** Sera Markoff, James Matthews, Enrico Ramirez Ruiz
- **Dynamical spacetimes:** Rafael Porto, Philipp Moesta
- **Early universe:** Daniel Baumann, Laura Covi
- **Nuclear Astrophysics:** Tetyana Galatyuk, Tanja Hinderer
- **Neutrino Properties:** Thomas Schwetz, Olga Mena
- **Particles from stars:** Aldo Serenelli, Irene Tamborra
- **Traveling Messengers:** Daniele Gaggero, Kumiko Kotera

EuCAPT Whitepaper
https://arxiv.org/abs/2110.10074

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If you are interested in joining or learning more
Contact: strojanowski@camk.edu.pl