

# ***PROGRAMME OF TEPA-2024***

## **THUNDERSTORMS & ELEMENTARY PARTICLE ACCELERATION**

80 years of cosmic ray monitoring on Aragats, 15 years of TGE observation

October 14-17, 2024

**LOCATION:** Seminar hall of Cosmic Ray Division of the Yerevan Physics Institute,

Yerevan, Alikhanyan Brothers 2, Armenia.

### **SYMPOSIUM WEBSITE:**

[http://crd.yerphi.am/TEPA\\_2024](http://crd.yerphi.am/TEPA_2024)

### **ORGANIZER:**

Cosmic Ray Division  
of Yerevan Physics Institute, Armenia



## **PROGRAMME**

***Monday, 14 October***

10:00 – 11:00     Registration

11:00 – 11:20     Opening Ceremony

***Session 1: Multivariate observations of particles and fields***  
***Chairperson – Johannes Knapp***

11:20 – 12:00     ***Ashot Chilingarian***, Yerevan Physics Institute,

*High Energy Physics in Atmosphere, HEPA-2024*

12:00 – 12:30     ***Coffee break***

12:30 – 13:15     ***Razmik Mirzoyan***, Max-Planck-Institute for Physics,  
Garching, Germany,  
Important Transformations in Ground-based Gamma- and  
Cosmic Ray Astrophysics

13:15 – 15:00     ***Lunch***

- 15:00                    **Session 1: Chairperson - Johannes Knapp**
- 15:30 – 15:50        **Ondřej Ploc**, Department of Radiation Dosimetry, Nuclear Physics Institute of the Czech Academy of Sciences, *Advancing the Detection and Analysis of Thunderstorm-Related Radiation Phenomena: Progress of the GASTRON Project*
- 15:50 – 16:10        **Martin Kákona**, Department of Radiation Dosimetry, Nuclear Physics Institute of the Czech Academy of Sciences, *Simultaneous Monitoring of Electric Field and Lightning Brightness for Cloud Charge Mapping*
- 16:40 – 17:00        **Nikolaj Budnev**, Irkutsk University, *Perspective to add thunderstorm phenomena, including TGE research into the TAIGA program.*
- Gagik Hovsepyan**, Yerevan Physics Institute, *Parameters of spectrometers operated on Aragats and Zugspitze.*
- 17:00 – 17:30        **Coffee break**
- 17:30 – 17:50        **Pavel Klimov**, Lomonosov Moscow State University, *Optical response of the atmosphere to the relativistic electrons microbursts: results of PAIPS project*
- 17:50 – 18:10        **Mary Zazyan**, Yerevan Physics Institute, *Do VHE gamma rays migrate to UHE? Synergy of Galactic and Atmospheric Accelerators.*

18:10 - 18:30

**Liza Hovhannisyan**, Yerevan Physics Institute,  
*Modeling of Relativistic Runaway Electron Avalanches  
(RREA) in the air above Aragats*

*Tuesday, 15 October*

**Session 2. Instrumentation and data analysis**

**Chairperson – Mirzoyan Razmik**

- 10:00 - 10:20      **S.S. Timakov, A.A. Petrukhin**, National Research Nuclear University MEPhI,  
*A new method for studying atmospheric processes using the azimuthal distribution of the muon flux*
- 10:20 – 10:40      **L.G.Tkachev**, Joint Institute for Nuclear Research,  
*The TUS detector calibration in flight by anomalous events*
- 10:40 - 11:00      **Aleksandr Blinov**, Lomonosov Moscow State University,  
*Imaging near-UV photometer as an effective instrument for high energy physics of atmosphere, magnetosphere, and cosmic rays*
- 11:00 – 11:20      **Lev Kozliner**, Yerevan Physics Institute,  
*Reestablishing the Yerevan site for TGE particle and atmospheric parameters monitoring*
- 11:20 - 12:00      **Coffee break**
- 12:00 – 12:20      **Tigran Karapetyan**, Yerevan Physics Institute,  
*Solar Events observed by the SEVAN particle detector network in the 25th solar activity cycle*
- 12:20 – 12:40      **Balabek Sargsyan**, Yerevan Physics Institute,  
*Thunderstorm ground enhancements (TGEs) originated by RREA and Radon progeny gamma radiation.*
- 12:40 – 13:00      **Qajik Piliposyan**, Yerevan Physics Institute,  
*The horizontal profile of the atmospheric electric fields as measured during thunderstorms by the network of particle detectors located on the slopes of Mt. Aragats*

- 13:00 – 13:20      **Gagik Hovsepyan**, Yerevan Physics Institute,  
*Parameters of spectrometers operated on Aragats and Zugspitze.*
- 13:20 – 15:00      **Lunch**
- 15:00 – 15:20      **Suren Chilingaryan**, Institute for Data Processing and  
Electronics, Karlsruhe Institute of Technology,  
*Data analysis infrastructures in Cosmic Ray physics:  
experience from Aragats*
- 15:20 – 15:40      **Sandro Melissano**, Institute for Data Processing and  
Electronics, Karlsruhe Institute of Technology  
*Six dimensions of benchmarking: New Perspectives on  
Time Series Data for Monitoring Applications.*
- 15:40 – 16:00      **Nicholas Tan Jerome**, Institute for Data Processing  
and Electronics, Karlsruhe Institute of Technology,  
*BORA: A Personalized Data Display for Large-scale  
Experiments*
- 16:00 – 16:30      **Coffee break**
- 16:30 – 16:50      **David Pokhsraryan**, Yerevan Physics Institute,  
*Space-temporal structure of the thunderstorm ground  
enhancements (TGEs)*
- 16:50 – 17:10      **Sergej Abovyan**, Yerevan Physics Institute,  
*Electronics of collider and Cosmic ray experiments*
- 17:10 – 17:40      **Suren Arutunian**, Yerevan Physics Institute,  
*Long-term measurements of atmospheric pressure  
fluctuations by vibrating wire flowmeter*

***Wednesday, 16 October***

- 10:00 - 11:00      **Discussion:** *Origin of particle fluxes from thunderclouds: TGEs, TGFs, downward TGFs, upward TGEs*
- 11:00– 12:00      **Zara Asaturyan**, Yerevan Physics Institute,  
*CRD projects: “Install your detector on Mount Aragats” and others*
- 12:00-12:15      **Discussion on Further collaborations on Aragats Cosmic Ray Observatory**
- Closing Ceremony**
- 12:15 - 13:30      **Lunch**
- 14:30 – 17:00      **Excursion to Aragats Cosmic Ray Station;  
Introduction to Aragats Space Environmental Center particle monitors**
- 18:00                **Conference dinner in Nor Amberd**

***Thursday, 17 October***

- 11:00- 12:30      **ASEC collaboration board meeting**

## List of Participants

Full Name	E-mail	Country
Ondřej Ploc	ploc@ujf.cas.cz	Czechia
Mary Zazyan	mary@yerphi.am	Armenia
Martin Kákona	martin.kakona@odz.ujf.cas.cz	Czech
Razmik Mirzoyan	Mirzoyan.Razmik@gmail.com	Deutschland
Tigran Karapetyan	ktigran79@gmail.com	Armenia
Liza Hovhannisyan	liza.hovhannisyan@aanl.am	Armenia
Sandro Melissano	sandrome@mailbox.org	Germany
Nicholas Tan Jerome	nicholas.tanjerome@kit.edu	Germany
Pavel Klimov	pavel.klimov@gmail.com	Russia (RF)
Stanislav Timakov	sstimakov@mephi.ru	Russia (RF)
Nikolay Budnev	nbudnev@api.isu.ru	Russia (RF)
Manfred Fleischer	manfred.fleischer@desy.de	Germany
David Kagramanyan	dgkagramanyan@miem.hse.ru	Russia (RF)
Johannes Knapp	johannes.knapp@desy.de	Germany
Ashot Chilingarian	chili@aragats.am	Armenia
Leonid Tkachev	tkatchev@jinr.ru	Russia (RF)
Aleksandr Blinov	sashblinov1998@yandex.ru	Russia (RF)
Lev Kozliner	lkozliner@mail.ru	Armenia
AleksandrBlinov	sashblinov1998@yandex.ru	Russia (RF)
Zara Asaturyan	z.asaturyan@yerphi.am	Armenia
Suren Chilingaryan	csa@suren.me	
Balabek Sargsyan	balabeksargsyan@gmail.com	Armenia
Qajik Piliposyan	qajikpiliposyan1@gmail.com	Armenia
Hovsepyan Gagik	hgg@yerphi.am	Armenia
Suren Arutunian	femto@yerphi.am	Armenia