



## Conference

### Thunderstorms and Elementary Particle Acceleration (TEPA-2013)



#### GENERAL INFORMATION:

**DATES:** September 9-13 2013

**LOCATION:** Nor Amberd International Conference Centre of the Yerevan Physics Institute, Byurakan, Aragatsotn Province, Armenia;

#### CONFERENCE WEBSITE.

<http://crd.yerphi.am/Conferences/tepa2013/home>

#### ORGANIZERS:

Cosmic Ray Division of Yerevan Physics Institute, Armenia

Skobeltsyn Institute of Nuclear Physics of Moscow State University, Russia

## **INTERNATIONAL ADVISORY COMMITTEE:**

- Ashot Chilingarian, Yerevan Physics Institute, Armenia, co-chair
- *Lev Dorman*, Israel Cosmic Ray Center and Emilio Segre' Observatory, Israel
- *Joe Dwyer*, Florida Institute of Technology, USA
- *Gerald Fishman*, NASA-Marshall Space Flight Center, Huntsville, USA)
- *Hartmut Gemmeke*, Karlsruhe Institute of Technology, Germany
- *Andreas Haungs*, Karlsruhe Institute of Technology, Germany
- *Johannes Knapp*, Leeds University, UK
- *Karel Kudela*, Institute of Experimental Physics, Slovakia
- *Alexandr Lidvanski*, Nuclear Physics Institute, Russian Academy of Science, Russian Federation
- *Jean Lilensten*, Laboratory of Planetology, Grenoble, France
- Evgeny Mareev, Institute of Applied Physics, Nizhny Novgorod, Russian Federation
- Razmik Mirzoyan, MPI, Munich, Germany
- *Yasushi Muraki*, STE laboratory, Nagoya University, Japan
- *Michail Panasyuk*, Moscow State University, Russian Federation, co-chair
- *Marco Tavani*, INAF and University of Rome "Tor Vergata", Italy
- *Tatsuo Torii*, Japan Atomic Energy Agency, Tsuruga, Japan
- *Harufumi Tsuchiya*, Cosmic Radiation Laboratory, Riken, Japan.
- *Lev Zeleny*, Space Research Institute, Russian Academy of Sciences, Russian Federation

## **BACKGROUND:**

Studying of the High-energy Phenomena in the atmosphere is important for several reasons:

- *It provides unique information about particle acceleration and multiplication in the lower and upper atmosphere during thunderstorms;*
- *Generation and propagation of huge fluxes of electrons, positrons, gammas and neutrons in the atmosphere and in space are newly discovered global processes that should be studied by experimental and theoretical methods;*
- *Electromagnetic emissions connected with thunderstorms trigger various dynamic processes in the Earth's magnetosphere, causing global geo-effects and changing electrodynamic properties of the ionosphere.*
- *The large fluencies of energetic electrons, photons and neutrons produced by runaway electron avalanches can potentially be a danger to individuals in aircraft.*

## **GOALS AND STRUCTURE OF THE CONFERENCE:**

The aim of the Conference is two-fold:

1. To organize a large forum for discussing thunderstorm correlated observations of particle fluxes in the atmosphere and space and models of high energy phenomena originated in the atmosphere;
2. To discuss possible directions for the advancement in research, and for international cooperation between scientific groups using different experimental methods.

Based on these goals the following topics will be covered:

- *Research of the Thunderstorm ground enhancements (TGEs), measurements of electrons, gamma rays and neutrons by networks of particle detectors located on Earth's surface in correlation with thunderstorms;*
- *Research of the Terrestrial gamma-ray flashes (TGFs) observed by the orbiting gamma-ray observatories;*
- *Radio emissions produced by TGFs.*
- *Monitoring of thunderclouds from orbit;*
- *Methods of the remote sensing of the thunderstorm structure and electric field;*
- *Relation of the lightning occurrences to the TGE and TGF initiation;*
- *X-ray emissions from lightning;*
- *Relations to the climate and space weather issues;*
- *Possibility of joint observations by space-born and ground-based facilities.*

## **ATTENDANCE LIMITATION:**

Due to the size of the venue and other restrictions, the number of participants will be limited to 40. Therefore, participation in the Conference is by invitation only. Registered personnel need to submit an abstract to receive an invitation.

## **ABSTRACT SUBMISSION:**

The Conference will consist of invited speakers and contributed presentations. Members of the International Advisory Committee will select the invited speakers and contributed presentations from the submitted abstracts after their evaluation. Abstracts should be submitted electronically on the Conference website. The deadline for abstract submission is 1 June 2013.

## **REGISTRATION:**

Registration to **TEPA 2013** is to be done online via the Conference website.

In the near future, we will provide participants with their own account on our Conference website. These accounts will serve for the submission of abstracts, papers for Conference proceedings and for providing additional information about accompanying persons, conference dinner and so on.

Registration fees:

- Regular Attendees [ 250 Euro ]
- Undergraduate and Graduate Students [ 100 Euro ]

The fee covers the cost of transportation from and to airport, coffee breaks, as well as the Reception and the Banquet, and excursions to the Aragats research station of Yerevan Physics Institute and Etchmiadzin Cathedral. Payment of the registration fee will be accepted at the Conference desk upon arrival.

## **CONFERENCE DEADLINES:**

- 15 June 2013            Abstract submission deadline
- 15 July 2013            Contributed presentations selected and participants notified
- 15 August 2013        Conference program details

## **TRANSPORTATION AND LODGING:**

The organizers will provide transportation from/to the Yerevan Airport “Zvartnots”. Information on the arrival date, time and flight number should be sent to the Local Organizing Committee.

During the Conference the participants will be accommodated at the hotels in Byurakan village. The list of hotels with prices will appear on conference site. Nor Amberd International Conference Center of Yerevan Physics Institute is located on the slopes of Mount Aragats near the village of Byurakan, Aragatsotn District, Armenia. The Center has a rich tradition of hosting high-energy physics schools and is well equipped for international forums.

## **CORRESPONDENCE:**

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