PHD POSITION

RREA Contribution to Thunderstorm Ground Enhancements and TGFs

POSITION OVERVIEW

Institution:	Cosmic Ray Division (CRD) of the Alikhanyan National Laboratory (YerPhI)
Location:	Aragats Space Environmental Center (ASEC), Yerevan, Armenia
Duration:	Three years, full-time
Research Focus:	High-energy radiation in thunderstorms, Relativistic Runaway Electron Avalanches (RREA), TGEs, and Gamma glows

The Cosmic Ray Division (CRD) invites applications for a dedicated PhD position. The successful candidate will join an international research effort to study high-energy atmospheric phenomena, using the unique high-altitude facilities at Mt. Aragats. The PhD project is part of the 15 GRAIL (Gamma Radiation from the Atmosphere for Investigation and Learning) PhD projects in the European doctoral network. The position will start on September 1st. Payment is in accordance with EU rules on Doctoral Networks. More information about GRAIL can be found at grail.physik.tu-dortmund.de

KEY RESPONSIBILITIES

- Model the development of electron–photon avalanches in realistic atmospheric electric fields.
- Perform CORSIKA and GEANT4 Monte Carlo simulations of RREA and MOS-type acceleration processes.
- Analyze long-term Thunderstorm Ground Enhancement (TGE) measurements from the ASEC and

- Quantify particle yields, energy spectra, and altitude dependence of avalanche processes.
- Participate in particle detector modernization and routine maintenance.
- Undertake shifts at the high-altitude Aragats research station.
- Compare simulation results with experimental observations to validate theoretical models.
- Publish research findings in peer-reviewed scientific journals and present at conferences.

WHAT WE OFFER

- **World-Class Environment:** Integration into a leading high-altitude cosmic-ray and atmospheric physics research environment.
- **Unique Infrastructure:** Direct access to unique experimental infrastructure at the Aragats Space Environmental Center.
- **Global Networking:** Opportunities for participation in international collaborations, scientific conferences, and specialized training schools.
- **Expert Mentorship:** Comprehensive supervision by experienced researchers in cosmic-ray and atmospheric electricity physics.

CANDIDATE PROFILE

The ideal candidate will possess the following qualifications:

- **Education:** Master's degree in physics, astrophysics, atmospheric science, or a closely related discipline.
- **Scientific Background:** A solid background in particle physics, cosmic-ray physics, and numerical modeling.
- **Technical Skills:** Experience in scientific programming.
- **Motivation:** Strong motivation for interdisciplinary and experimental–theoretical research.

EQUAL OPPORTUNITIES

The institution promotes equal opportunities for all candidates. Applications from women are particularly encouraged to foster diversity in the scientific community. The selected candidate will be officially enrolled in the PhD program of the host institution.

Alikhanyan National Laboratory (YerPhI) • Aragats Space Environmental Center (ASEC). Prof. Ashot Chilingarian
Chili@aragats.am Deadline is May 24th, 2026, 11:59 p.m.