



# ***AtmoHEAD 2024***

***ATmospheric MOnitoring for High Energy Astroparticle Detectors***

**Ischia (NA) - Italy  
July 15<sup>th</sup> - 17<sup>th</sup>, 2024**

## **FIRST CIRCULAR**

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We are pleased to announce the ATmospheric MOnitoring for High Energy Astroparticle Detectors - AtmoHEAD 2024 conference, which will be held at Hotel Continental Ischia (Island of Ischia, Italy) from 15<sup>th</sup> to 17<sup>th</sup> July, 2024.

**AtmoHEAD is a periodic 3-days international workshop on the influence of the atmosphere on high-energy cosmic-ray and gamma-ray astroparticle detectors. The 2024 workshop is focused on both atmospheric monitoring and on the detection and study of events related to atmospheric electricity.**

The event follows the tradition of previous AtmoHEAD conferences - AtmoHEAD 2013 in Saclay, 2014 in Padova, 2016 in Olomouc, 2018 and 2022 in Anacapri.

The atmosphere is an integral component of many high-energy astroparticle detectors. These include Imaging Atmospheric Cherenkov Telescopes (IACTs) and ground or space based cosmic-ray extensive air shower detectors. All these observatories use the atmosphere as a giant calorimeter where cosmic rays and gamma rays deposit their energy and initiate extensive air showers; it is also the medium through which the resulting Cherenkov and Fluorescence light propagates, and through which it is attenuated and scattered before reaching the detectors. Clearly, a precise and quantitative monitoring of the atmospheric aerosol and molecular conditions is mandatory for an accurate reconstruction of the detected events. Moreover, the consolidated interest of major cosmic ray and gamma ray observatories in phenomena related to atmospheric electricity expanded the scope of interest of the conference to include this topic. It is important to understand and possibly monitor the effects of atmospheric electricity on cosmic and gamma ray measurements. At the same time, high-energy astroparticle detectors represent an opportunity to study atmospheric electricity phenomena (ELVES, TGFs, ...) with large aperture and timing/spatial resolution.

New and common monitoring and calibration instruments including lidars, distant laser facilities, cloud monitors, all sky cameras, sun/moon photometers, satellite observations, lightning sensors, as well as simulations, are among the most important tools of these observatories.

The workshop focuses on the state-of-the-art and future perspectives of techniques and instruments.

The main topics of the conference, treated in dedicated sessions, are :

- the influence of the atmosphere on the measurements of present and future UHECR and gamma-ray experiments
- terrestrial gamma-ray flashes, transient luminous events and general topics in atmospheric electricity

- analysis techniques and instruments
- public global data sets, models and simulations

The workshop aims to encourage discussions among participants of different but complementary fields, allocating specific time slots for discussion. AtmoHEAD 2024 proceedings will be published online and they are requested to be submitted right before the beginning of the conference.

Important dates and deadlines:

- Registration : from March 6<sup>th</sup> to May 31<sup>st</sup>
- Abstract Submission: Apr 21<sup>st</sup>
- Notification of Acceptance: May 3<sup>rd</sup>
- Conference dates: July 15<sup>th</sup> - 17<sup>th</sup>
- Proceeding Submission: July 10<sup>th</sup>

The conference will start in the morning of July 15<sup>th</sup> and will end by lunchtime of July 17<sup>th</sup>. The fee is 160€ and includes coffee breaks, a welcome cocktail on Monday, July 15<sup>th</sup> and the social dinner on Tuesday, July 16<sup>th</sup> as well as the proceedings of the workshop that will be published online. Deadline for fee payment is May 31<sup>st</sup>. Details for the payment will follow in the next weeks.

Participants are strongly encouraged to book their rooms at the Hotel Continental Ischia using the “hotel reservation form”, as special rates are available with breakfasts and lunches included.

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*AtmoHEAD 2024 is organized by the Department of Physics “E. Pancini” of the University of Napoli Federico II and by the Napoli Division of the National Institute of Nuclear Physics (INFN) with the contribution of the Department of Physics and Chemistry of University of L’Aquila - UNIVAQ.*

*The AtmoHEAD 2024 Organizing Committee :*

Roberta Colalillo  
Alessia Sannino  
Laura Valore

*The AtmoHEAD 2024 Scientific Organizing Committee :*

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|----------------------|---|
| 1. Rasha Abbasi      | Loyola University – Chicago (USA)                                       |
| 2. Roberta Colalillo | Università di Napoli Federico II and INFN - Napoli (Italy)              |
| 3. Joseph Dwyer      | University of New Hampshire – Durham (USA)                              |
| 4. Markus Gaug       | Universitat Autònoma de Barcelona - (Spain)                             |
| 5. Bianca Keilhauer  | Karlsruher Institut für Technologie - Karlsruhe (Germany)               |
| 6. Roberto Mussa     | Università di Torino and INFN - Torino (Italy)                          |
| 7. Vincenzo Rizi     | Università degli Studi dell’Aquila, INFN and CETEMPS - L’Aquila (Italy) |

Conference e-mail address: [atmohead2024@lists.na.infn.it](mailto:atmohead2024@lists.na.infn.it)

Conference Web site: <https://agenda.infn.it/e/atmohead2024>



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