UNIVERSITÉ DE GENÈVE

PRESS RELEASE

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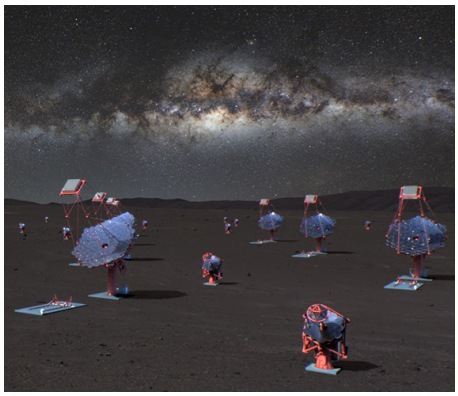
European Green Light for the World's Largest Gamma Ray Observatory

The UNIGE coordinates the participation of Swiss institutions in the CTAO project, which addresses the most fascinating questions of high-energy astrophysics.

The European Commission today established the European Research Infrastructure Consortium (ERIC) of the Cherenkov Telescope Array (CTAO). The CTAO ERIC was established with the international support of 11 countries, including Switzerland, and of the European Southern Observatory (ESO). With its telescope arrays deployed across both hemispheres, in Spain and Chile, the CTAO will be the largest and most powerful gamma-ray astronomy observatory in the world, and the only one to cover the entire sky from Earth. The participation of Swiss institutions, supported by SEFRI, is coordinated by the University of Geneva (UNIGE).

The creation of the CTAO ERIC will enable the Observatory's construction to advance rapidly and provide a framework for distributing its data worldwide, significantly accelerating its progress toward scientific discovery. "The ERIC will streamline the construction and operation of the Observatory in a way that will undoubtedly help the CTAO attract new talent and investment as it continues to grow," stated Dr. Aldo Covello, Chair of the Board of Governmental Representatives (BGR). "The ERIC status provides the CTAO with the legal stability and administrative advantages it needs to be sustainable in its worldwide operations and impact."



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CTAO's southern hemisphere site or CTAO-South. The array is located less than 10 km south-east of the European Southern Observatory's (ESO's) existing Paranal Observatory in the Atacama Desert in Chile, which is considered one of the driest and most isolated regions on Earth.

High resolution pictures

Video

"Switzerland was one of the first three countries to make a formal commitment to the CTAO project. Today, it coordinates cutting-edge activities linked to the large telescopes installed at La Palma, in the Canary Islands. Together with my colleagues, Professors Domenico della Volpe, Roland Walter and Matthieu Heller, as well as our young collaborators from the Departments of Nuclear and Corpuscular Physics and Astronomy at the UNIGE, and the CTAO partners, we have made it possible to build four telescopes of 23 metres in diameter and to develop CTAO's control and calibration software," says Teresa Montaruli, professor in the Particle Physics Department at the UNIGE Faculty of Science.

With the CSCS Swiss National Supercomputing Centre at ETH Lugano, also a massive data centre for astronomy at CTAO and SKAO, the Swiss scientists will be ideally placed to discover new powerful sources, opaque to other astronomical bands than gamma rays. "We hope to deepen our understanding of the mechanisms of the most energetic accelerators in our galaxy and beyond, as well as make progress in the quest for dark matter," continues the researcher.

The ERIC not only provides the Central Organisation with a formal framework to accept and operate the current telescope prototypes, but it also allows for the immediate start of construction for the full array of more than 60 telescopes across both telescope sites in Spain and Chile. The CTAO-North site is located at the Instituto de Astrofísica de Canarias' (IAC's) Roque de los Muchachos Observatory on La Palma (Spain). This is where the Large-Sized Telescope prototype (LST-1) is under commissioning and three additional LSTs and one Medium-Sized Telescope (MST) are expected to be built in the next one to two years.

Meanwhile, the first five Small-Sized Telescopes (SSTs) and two MSTs are expected to be delivered by early 2026 on the CTAO-South site at the European Southern Observatory's (ESO's) Paranal Observatory in the Atacama Desert (Chile). Thus, with the aid of the ERIC, the Observatory is expected to be able to operate intermediate array configurations as early as 2026. These sub-sets of the final arrays will already be more sensitive than any existing instrument. In the coming months, the Observatory will prepare to integrate and operate advanced software designed to control the telescopes and their supporting devices on-site, as well as to manage data processing.

The CTAO's unparalleled accuracy and broad energy range (20 GeV-300 TeV) will help to address some of the most perplexing questions in astrophysics, falling under three major themes: understanding the origin and role of relativistic cosmic particles; probing extreme environments, such as black holes or neutron stars; and exploring frontiers in physics, searching for dark matter or deviations from Einstein's theory of relativity.

"The ERIC status strengthens the presence of the CTAO in Europe and its role as a key player in the European Research Area, but the support we have received and the scope of the CTAO ERIC's influence goes far beyond European borders," explained Prof. Federico Ferrini, co-Managing Director. "To build and operate the world's largest gamma-ray observatory that serves the ambitious needs of the global scientific community, we are counting on an increasing number of partners from around the world."

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