

The 'Magnificent 7' of European astroparticle physics unveiled to the world

September 29 2008

Today Europeans presented to the world their strategy for the future of astroparticle physics. What is dark matter? What is the origin of cosmic rays? What is the role of violent cosmic processes? Can we detect gravitational waves?

With seven types of major large-scale projects physicists want to find the answers to some of the most exciting questions about the Universe:

- CTA, a large array of Cherenkov Telescopes for detection of cosmic high-energy gamma rays
- KM3NeT, a cubic kilometre-scale neutrino telescope in the Mediterranean Sea
- Ton-scale detectors for dark matter searches
- A ton-scale detector for the determination of the fundamental nature and mass of neutrinos
- A Megaton-scale detector for proton decay's search, neutrino astrophysics & investigation of neutrino properties
- A large array for the detection of charged cosmic rays
- A third-generation underground gravitational antenna

"New exciting discoveries lie ahead; it is up to us to take the lead on them in the next decade." says Christian Spiering from DESY – Germany, Chairman of the Roadmap Committee. After two years of roadmap process, the publication of The European Strategy for Astroparticle Physics is an important step for the field outlining a leading role for Europe in this increasingly globalised endeavour.

From undersea and underground laboratories to the most isolated deserts and outer space, astroparticle physics experiments accept very exciting challenges. It is a promising and rapidly growing field of research at the intersection of particle physics, cosmology and astrophysics, aiming to detect the most elusive particles, and to penetrate the most intimate secrets of the Universe.

To insure the coordination of astroparticle physics at the European level, research agencies from 13 countries joined their efforts within the ASPERA* European network, an ERA-Net funded by the European Commission. Thanks to the work achieved through ASPERA, European countries for the first time have a common tool to programme jointly and share their efforts in astroparticle physics.

This ambitious programme will gather European countries to open new exciting windows to the Universe, and the most advanced projects such as CTA (high-energy gamma rays) and KM3NeT (high-energy neutrinos) could start construction by 2012. The complete funding of this billion-scale programme would need a smooth yearly increase of current investments for astroparticle physics, amounting to an integrated increase of about 50% in a ten-year period.

"The timely realization of the Magnificent Seven is a big challenge" says the coordinator of ASPERA Prof. Stavros Katsanevas (IN2P3/CNRS) - France, "But we are confident that none will be killed contrary to what happens in the film, as the European agencies and ApPEC* support these priorities and the same also emerge in other continents. It is important that we coordinate and share costs not only inside Europe but on a global scale."

This is why beyond Europe, ASPERA welcomes on 29 and 30 September 2008 200 scientists and officials of funding agencies from all over the world, in view of international collaboration.

European astroparticle physicists also affirmed their support to Earth- and space-based missions to explore the phenomenon of "dark energy", to the concept of a cooperative network of deep underground laboratories, and to a common call for innovative technologies in the field of astroparticle physics. In addition, they declared their wish to see the formation of a European Centre for Astroparticle Physics Theory.

Source: CERN

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