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Mirya- μ 1 Cosmic Rays Detector; Features and First Measurements

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Cosmic rays are highly energetic charged particles that originate from near or deep space and bombard Earth's atmosphere from all directions uniformly. These particles consist of protons, electrons, and atomic nuclei and travel at near-light speeds. The energy range vary from 109 eV to 1021 eV due to the acceleration. While understanding their nature is quite important to reveal the particle acceleration mechanisms in the Universe, the fact that their rate depends on the solar activity makes observing cosmic rays through solar activity cycles very important for space weather applications. To establish the first cosmic ray observatory in Türkiye, we have been investigating a compact yet effective cosmic ray detector design. In this talk, we will present information on the Mirya- μ 1 detector, where we follow the design of the muon impact tracer and observer (MITO). Mirya- μ 1 includes two 1x1 meter scintillators, separated by about 1.3 meters in height with lead layers in between for background rejection. These scintillators are watched continuously by 8 photomultiplier tubes. The detector system is built at Istanbul University Observatory in collaboration with researchers from Universidad de Alcala and Ataturk University. The station will be located at the Eastern Anatolia Observatory site at an altitude of 3170 meters. We will also provide the very first measurements obtained in Istanbul.

Başlıca yazarlar:: DAĞ, Meryem Kübra

Ortak yazarlar: POLATOĞLU, Ahmet; BEĞİÇARSLAN, Beste; YEŞİLYAPRAK, Cahit; AKTAŞ, Ecem; BOSTANCI GÜVER, Funda; Dr. GURKAN, Guray (Istanbul University (TR)); BLANCO ÁVALOS, Juan José; TURAN SAĞLAM, Mustafa; AYUSO DE GREGORIO, Sindulfo; OZKORUCUKLU, Suat (Istanbul University (TR)); GÜVER, Tolga

Sunu yapanlar: DAĞ, Meryem Kübra