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Very High Energy Gamma-ray Astronomy with SWGO: the Southern Wide-Field Gamma-ray Observatory

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Abstract

Ground-based gamma-ray astronomy, at photons energies between GeV to TeV, has made rapid progress in recent years, exploiting two distinct and complementary techniques: imaging of air Cherenkov light (e.g. MAGIC, VERITAS or H.E.S.S.) and the direct detection of shower particles at mountain altitudes (e.g. Milagro, HAWC). The Cherenkov Telescope Array (CTA), represents the next step for the field in terms of the Cherenkov imaging, but will be complemented by an emerging particle detection instrument: the Southern Wide-Field Gamma-ray Observatory (SWGO). SWGO will be built at around ˜5 km altitude in the Andes, and is currently in an R&D phase. In this talk, I will present the SWGO concept and the scientific challenges which it will address, focusing on the complementarity to CTA and the new astrophysics and astroparticle physics opportunities that these new observatories will unlock.

Comments

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