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Status of the Southern Wide-Field Gamma-ray Observatory (SWGGO)

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High-elevation particle detectors have recently opened-up a new observational window in Astronomy, significantly increasing the number of detected gamma-ray sources in the very- to ultra-high energy range. In particular, these instruments have achieved unprecedented sensitivity above 100 TeV and detected gamma ray emission from sources up to 1 PeV. The recent successes have all been obtained in the Northern sky, motivating the development of a new instrument in the South, from where many prominent targets such as the Galactic Center can be accessed. The Southern Wide-field Gamma-ray Observatory (SWGGO) is the Collaboration to build a new extensive air shower array in South America for the observation of VHE to UHE gamma-rays, and is currently engaged in the design and prototyping work towards the realisation of this future facility. SWGGO will use an array of water-Cherenkov based particle detectors to provide a wide field and high duty cycle view of the southern sky, complementing CTA and the existing particle arrays of the Northern Hemisphere, such as HAWC and LHAASO. Towards the lower energies, SWGGO aims to push the observational range of wide-field ground-based gamma-ray facilities down to a few hundred GeV, thus bridging the gap with space-based instruments in the monitoring of the VHE sky. In this contribution I will provide an overview of the status of the project and plans for the future, including performance expectations and science goals, as well as ongoing activities towards the site search and technological developments.

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