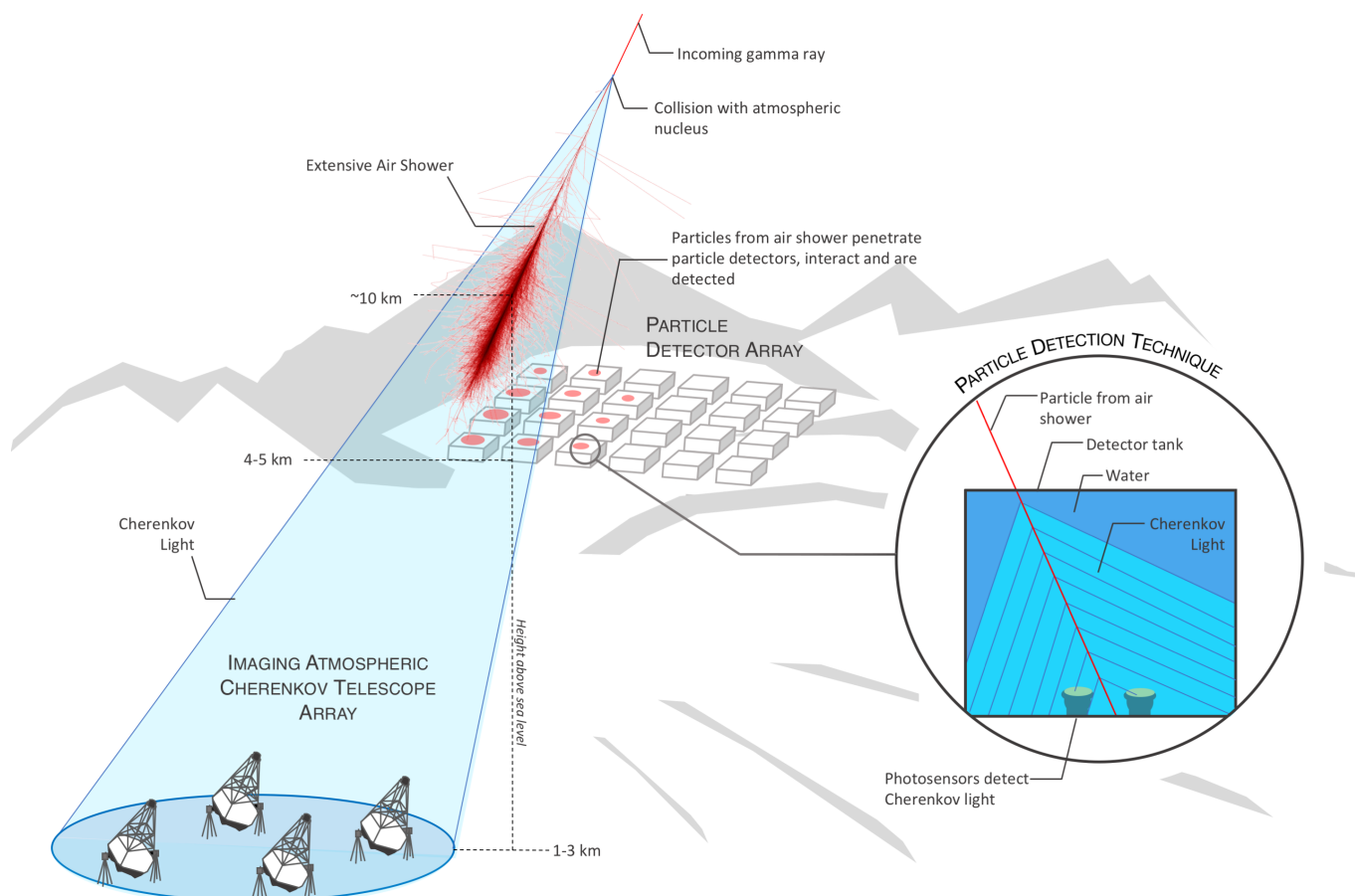


The Southern Wide field-of-view Gamma-ray Observatory (SWGGO)

The scientific potential of a wide field of view, and very high duty cycle, ground-based gamma-ray detector has been demonstrated by the current generation instruments HAWC and ARGO and will be extended in the Northern hemisphere by LHAASO. No such instrument exists in the southern hemisphere, where great potential exists for the mapping of large scale emission as well as providing access to the full sky for transient and variable multi-wavelength and multi-messenger phenomena. Access to the Galactic Centre and complementary with the major facility CTA-South are key motivations for such a gamma-ray observatory in the south. There is also significant potential for cosmic ray studies, including anisotropy.

The shared concept for the future observatory is as follows

- A gamma-ray observatory based on ground-level particle detection, with close to 100% duty cycle and order steradian field of view.
- Located in South America at a latitude between 10 and 30 degrees south.
- At an altitude of 4.4 km or higher.
- Covering an energy range from 100s of GeV to 100s of TeV.
- Based primarily on water Cherenkov detector units.
- With a high fill-factor core detector with area considerably larger than HAWC and significantly better sensitivity, and a low density outer array.



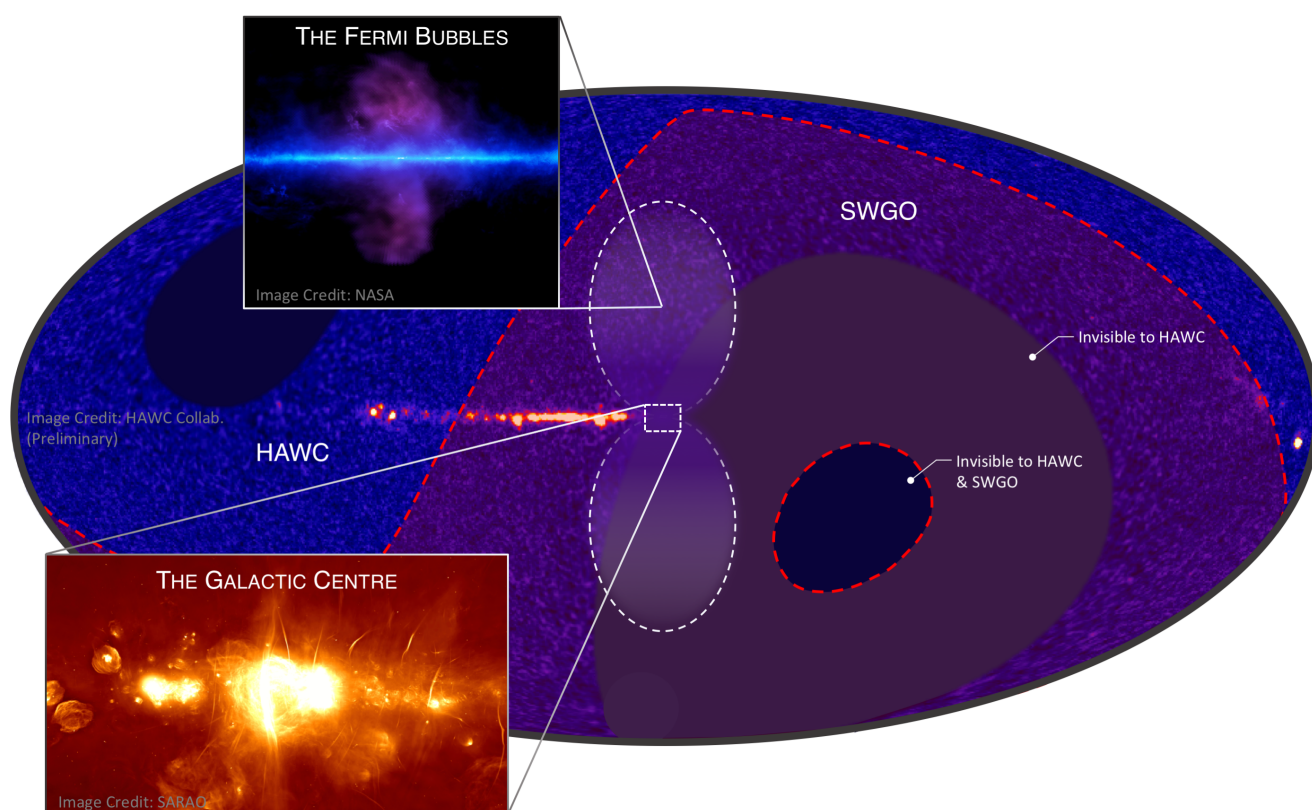
Shower image, 100 GeV γ -ray adapted from: F. Schmidt, J. Knapp, "CORSIKA Shower Images", 2005, <https://www-zeuthen.desy.de/~jknapp/fs/showerimages.html>

Not to scale

News

Founding of a new collaboration

On July 1st 2019, 39 research institutions from nine countries signed the agreement for the creation of a new international R&D collaboration for a future wide field-of-view gamma ray observatory in the southern hemisphere. The aim of the collaboration is to develop, over the next three years, a detailed proposal for the implementation of such an observatory, including site selection and technology choices. The founding countries of the newly created Southern Wide field-of-view Gamma-ray Observatory (SWGO) are Argentina, Brazil, Czech Republic, Germany, Italy, Mexico, Portugal, the United Kingdom and the United States of America, creating a worldwide community around the project. SWGO unifies different communities that were already involved in R&D in this field. The signature of the agreement comes after a successful meeting of the scientists from the different countries, held in Lisbon in May. [Press Release \(English\)](#)



Gamma-ray sky image as seen by the (current) HAWC and (future) SWGO observatories (Credit: Richard White, MPIK)

Science Case Published!

We recently published the first version of the science case for a southern wide field-of-view gamma ray observatory on the [arXiv](#). The idea is that this is a living document, if you would like to contribute

to a next version or want to endorse the effort let us know.

Collaboration

More information about the international R&D collaboration can be found [here](#). For more information about the project please contact the Spokesperson, [Jim Hinton](#).

If you would like to join SWGO please [send us](#) a message.

Workshops and Meetings

Links to past and upcoming meetings can be found at [Meetings](#).

Related Publications

Publication related to a Southern Wide field-of-view Gamma-ray Observatory can be found under [Publications](#).

Related Experiments

- [The HAWC gamma-ray observatory](#)
 - [LHAASO](#)
 - [The Cherenkov Telescope Array](#)
 - [HESS](#)
 - [VERITAS](#)
 - [MAGIC](#)
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