

***Science case for a Wide Field-of-View Very-High-Energy
Gamma-Ray observatory in the Southern Hemisphere***

*Harm Schoorlemmer, Miguel Mostafa, Segev Benzvi,
... and everyone that is interested*

Goal & contents of a white paper...

- 1. Collect all science applications in one document*
- 2. No focus on detector development to keep it general*
- 3. Use HAWC sensitivity as a “scalable” baseline to assess reasonable scenarios*
- 4. Organize the community, if any observatory will be build, it will be most likely only one.*

Time line & Editing plans

- *Everybody is busy with ICRC... Get a version ready by the end of the Summer*
- *Everyone should and can contribute*
- *But limited number of editors (Segev, Harm, Miguel,...)*
- *Community wide signup*

SCIENCE CASE FOR A WIDE FIELD-OF-VIEW VERY-HIGH-ENERGY GAMMA-RAY OBSERVATORY IN THE SOUTHERN HEMISPHERE

HARM SCHOORLEMMER, MIGUEL MOSTAFA, SEGEV BENZVI,
AND YOUR NAME CAN BE HERE...

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Today

- 1. Discuss & Record science topics*
- 2. Three sessions organized by topic. Within a session we can split up to work on subtopics.. Write something down. So we can report on it the next day and have a starting point for the text in the white paper.*
- 3. Discussions don't need to have conclusions, but think about how to move forward (who are the experts to contact, what study is needed, etc etc)*

When thinking about the science case, keep the following in mind

Be optimistic & realistic

- 1. CTA will be operational, which will have superior direction reconstruction, background rejections, and energy accuracy. CTA telescopes have wider field-of-view than current IACTs
<https://www.cta-observatory.org/science/cta-performance/>*
- 2. Why the Southern Hemisphere? What are the sources on that part of the sky?*
- 3. How do we perform with respect to HAWC? and LHAASO?*
- 4. In case of 0 detection today, preferably do not talk about N-detections in the future. But rather specify what model(s) will be constrained*

Some first thought on topics

Galactic γ -ray astronomy

PeVatrons

Geminga's

?

***Extended
emission***

Variability

Some first thought on topics

Extra-galactic γ -ray astronomy

“multi messenger”

GRB's
FRB's

ν , GW

AGN's

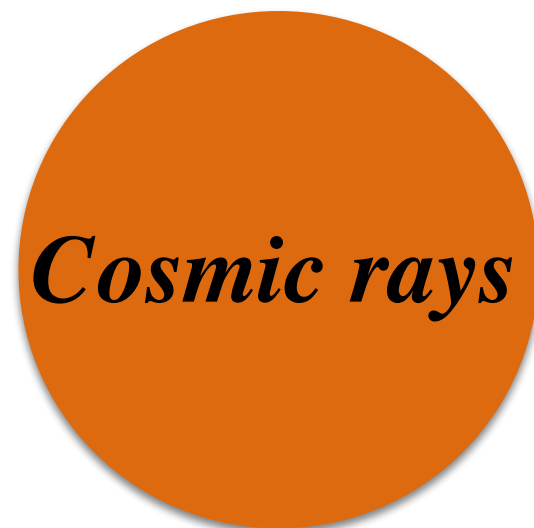
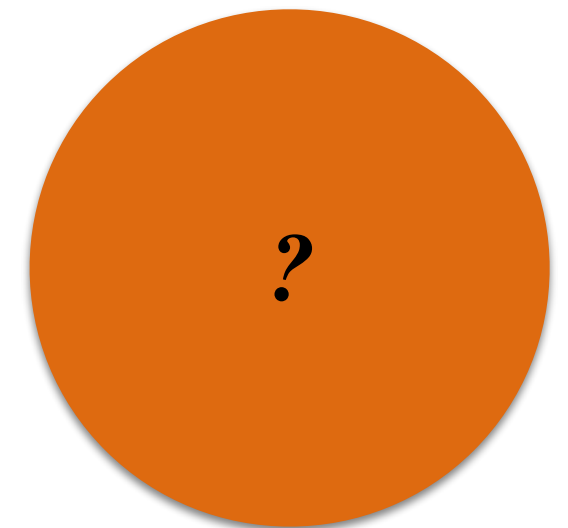
*Isotropic
background*

?

Some first thought on topics

Other

*related to gemingas
& identifying astrophysical foreground*



*Charge Ratio's
Anisotropy
Composition & Flux*

Lets do some work!