Search for Gamma-ray Line emission from Dark Matter annihilation in the Galactic Centre with the MAGIC telescopes

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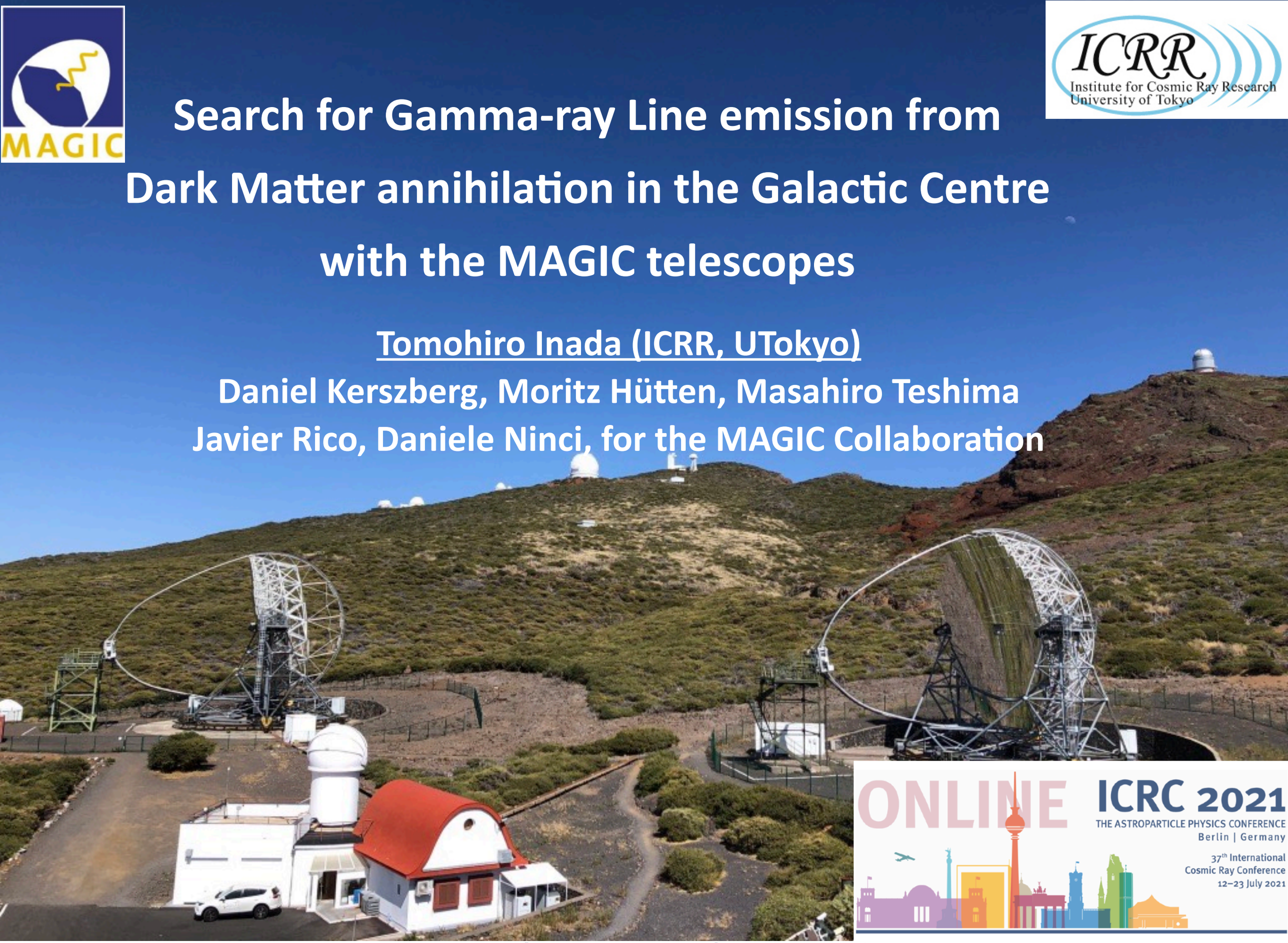

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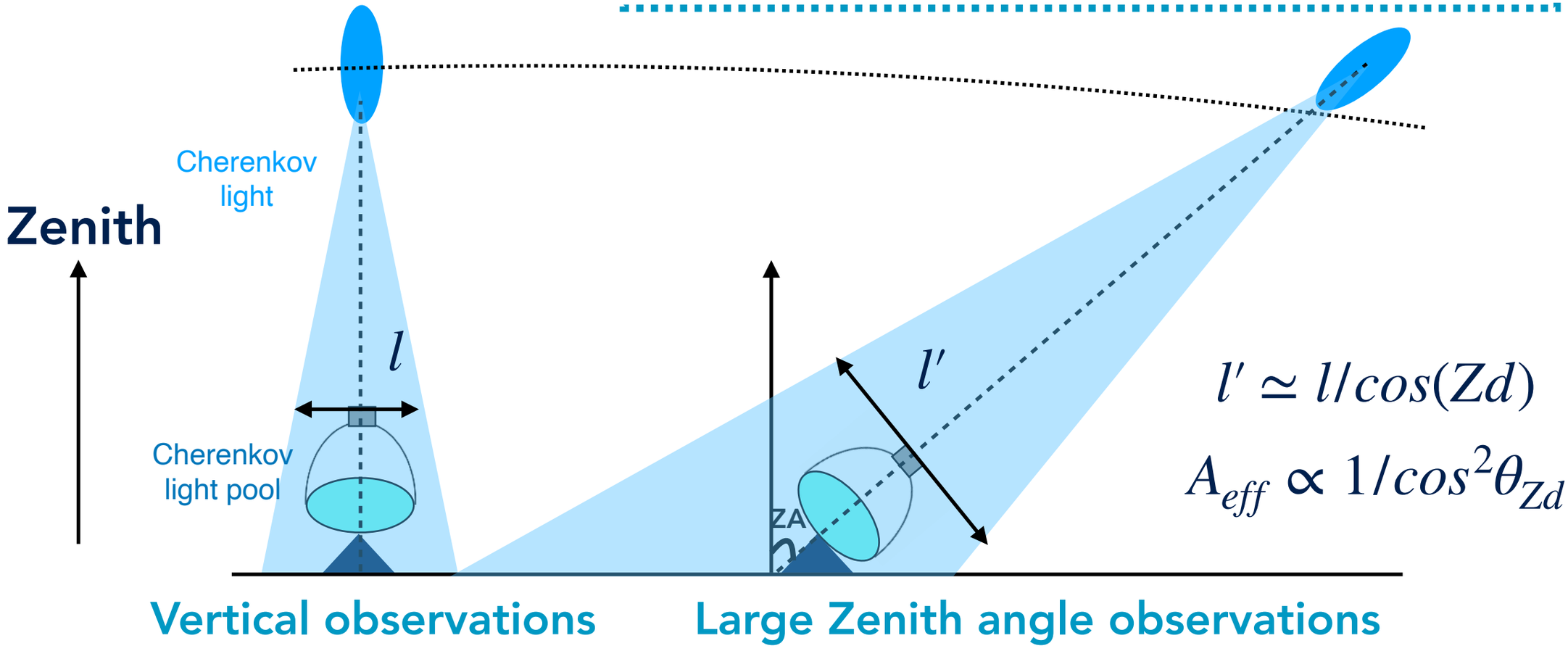
The GC observation by MAGIC

The GC observation by MAGIC

- Zenith angle : 58 - 70 [deg]
  - Large zenith angle observation, LZA

Pros
- Increase the γ-ray detectable area
  - Get larger statistics in higher energies

Cons
- Increase the energy threshold

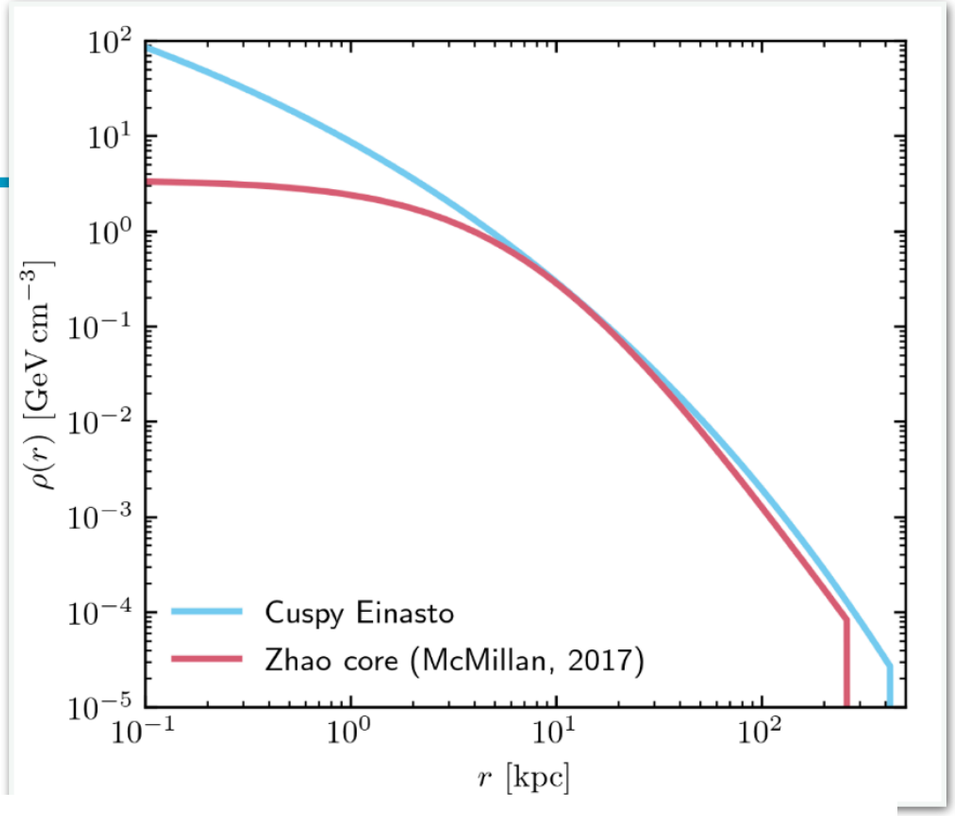


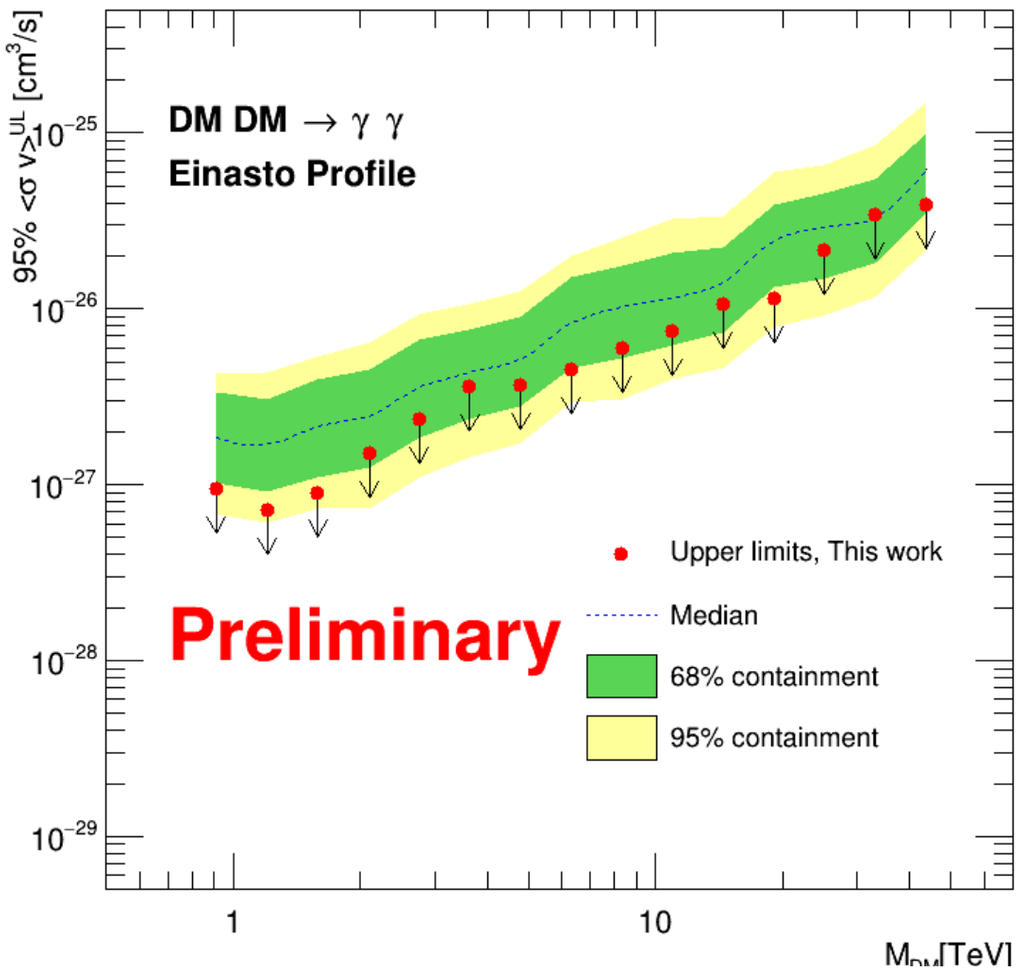
Large Zenith angle observations boost the sensitivity for line signals from TeV DM!!

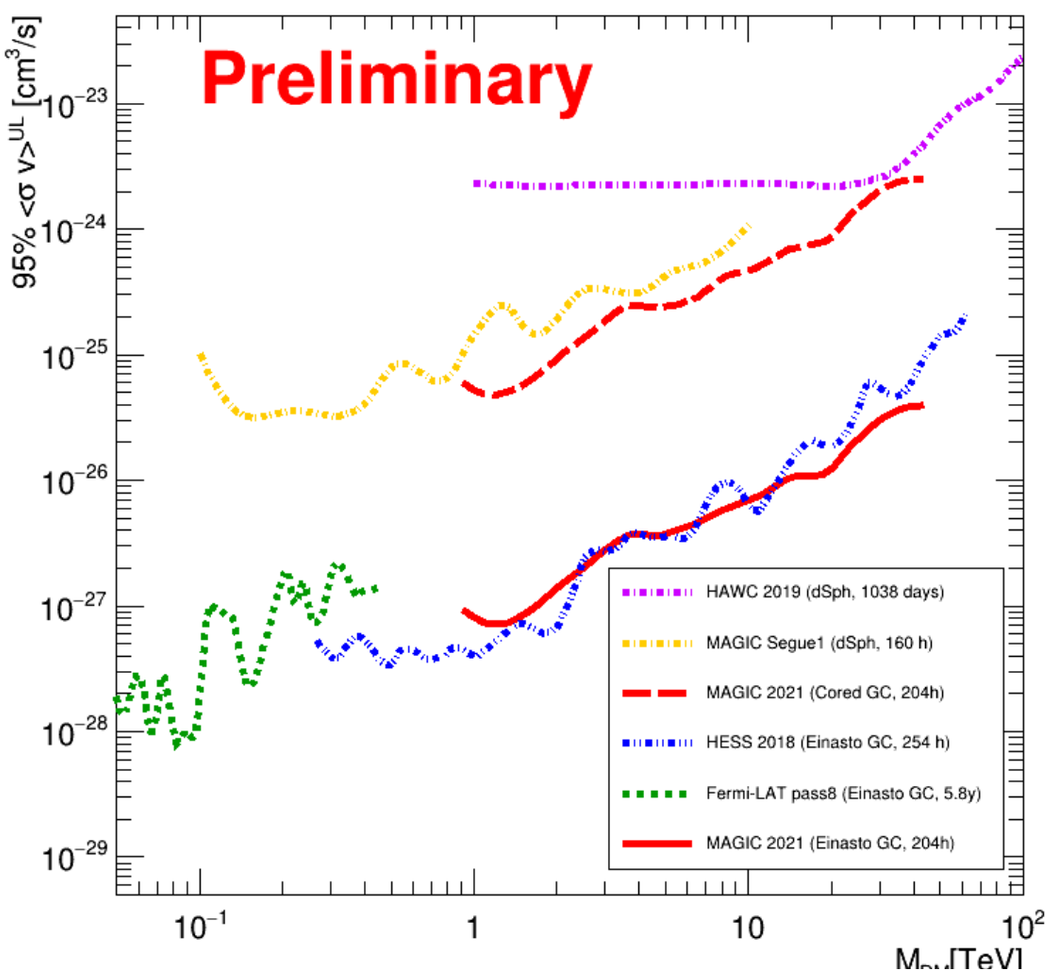
Results

No significant excess

- Set upper limits with 95% C.L. on 15 masses
- 912 GeV - 43 TeV
- with Einasto (cuspy) and cored profile.
- <u>E > 10 TeV : competitive</u>







Summary

- Search for line-like signals in VHE gamma rays can test some promising TeV DM particle models

- We reported observations with the MAGIC telescopes located on La Palma, Spain
  - Performed large zenith angle observations to focus on TeV DM
  - First search for DM lines at the GC with MAGIC

- No significant excess was found and upper limits were set on the annihilation cross section $\chi\chi \rightarrow \gamma\gamma$
  - Competitive limits for both cuspy and core DM profiles

- For the future (CTA era)
  - Large zenith angle observations of the GC are well suited to search for heavy DM candidates
  - High potential of the northern site to contribute to next-generation DM searches