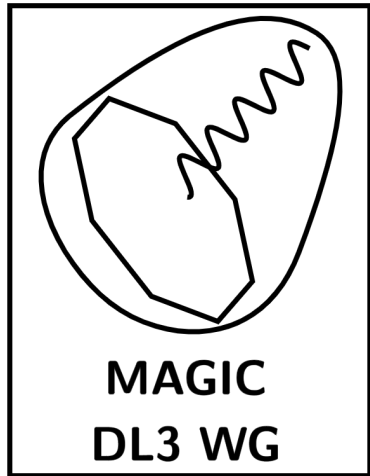# MAGIC involvement in the GADF initiative

MAGIC DL3 working group

First GADF organisation call

29 September 2021

MAGIC
DL3 WG

GADF-compliant DL3 production in MAGIC

- MAGIC already producing DL3 data compliant with the GADF specifications;
- DL3 converter built on MAGIC proprietary software, MARS (C. Nigro, L. Jouvin, T. Hassan):
  - any MAGIC analyzer able to generate DL3 data products from their dataset;
- 2 Crab nebula observations (40 mins) publicly released for the joint-crab project;
- multi-year datasets produced for internal use;
- smaller data productions for specific scientific projects.
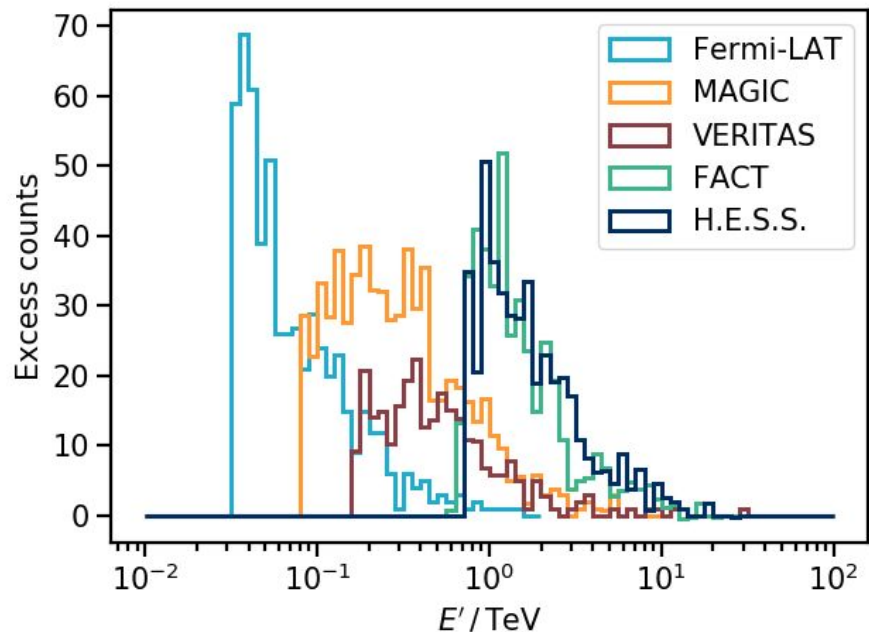
Prospect for DL3 data production in MAGIC

- *MAGIC legacy data*: proposal to convert all MAGIC stereo data (since 2009) in DL3 GADF-compliant format (C. Nigro, J. Rico, J. Delgado);
- automatic pipeline for massive MAGIC data processing already producing DL3 data as final products (L. Linhoff);
- (soon) Gammapy + DL3 analysis requested alongside official MARS analysis by the software board among cross checks needed for results approval.
- no plans yet for public releases of MAGIC DL3 data;
- MAGIC/LST-1 team working to enable MAGIC data processing with ctapipe (might generate DL3 files eventually).

Potential GADF extensions for MAGIC data

- DL3:
  - MAGIC IRF components non radially-symmetric, might need two spatial variables;
  - robust acceptance model not ready in the current DL3 converter, cannot properly assess the impact of an approximation dependent only on offset;
  - one of MAGIC analysis tools (SkyPrism) can produce IRF in F.o.V. coordinates, not compatible with GADF specs though.
- DL4:
  - unbinned likelihood analysis used in many fundamental physics publication of MAGIC, already opened a request to add unbinned spectral data to the GADF.