

Extreme blazars under the eyes of MAGIC

Axel Arbet-Engels

Institute for Particle Physics and Astrophysics, ETH Zürich

On behalf of the team: E. Prandini, S. Ventura, V. Fallah Ramazani, M. Cerruti, C. Arcaro, K. Asano, D. Dorner, M. Manganaro, G. Bonnoli, F. D'Ammando, L. Foffano, F. Tavecchio, J. Becerra-Gonzalez, J. Jormanainen, P. DaVela for the MAGIC and FACT Collaborations

Extreme Blazars:

- Synchrotron SED peaking $>1\text{keV}$
- Some have gamma-ray SED peaking $>1\text{TeV}$ $\rightarrow$ hard-TeV extreme blazars
- Challenge standard acceleration/emission mechanisms
- Cosmological probes (e.g., EBL & IGMF)

MAGIC hard-TeV extreme blazar catalog:

- Observed 10 hard-TeV extreme blazar candidates
- 3 new VHE detections, 1 strong signal hint
- SEDs modelled using leptonic & hadronic scenarios

MAGIC VHE detection of RX J0812.0+0237:

- 5.21 sigma detection
- Power-law VHE spectrum: index 2.58 ± 0.33
- Upcoming publication with MWL data

Bright VHE flare of 1ES2344:

- Extreme blazar behaviour when flaring
- Bright VHE flare during 2016
 - $\rightarrow$ deep MWL coverage
- SED interpreted within leptonic and hadronic models

MAGIC hard-TeV blazar catalog

