Contribution ID: **67** Type: **Talk**

All the MAGIC of extreme blazars

Wednesday, 23 January 2019 10:10 (20 minutes)

Extreme blazars (EHBLs) are generally characterized by a synchrotron peak located at energies > 1 keV in their SED, and by the hardness of their spectrum in the high-energy (HE, E > 100 MeV) gamma-ray range. So far, only a handful of these objects have been detected in very-high-energy (VHE, E > 100 GeV) gamma rays by imaging atmospheric Cherenkov telescopes (IACTs). Some such objects (e.g. 1ES 0229+200) have shown hard VHE spectra extending to several TeV, making their multi-wavelength emission difficult to interpret naturally with standard, one-zone synchrotron self-Compton models, unlike for non-extreme BL Lac objects. Their GeV-TeV spectra can also shed new light on the blazar sequence. Since 2010, eleven EHBLs have been observed in multi-wavelength campaigns involving the MAGIC IACTs, aiming to increase the number of known EHBL TeV-emitters. Five sources have been clearly detected by MAGIC. This contribution will present the results of these campaigns, including a comparison of the GeV-TeV behavior of these sources with that of the well-known, archetypal EHBL, 1ES 0229+200, as well as interpretations via models that invoke non-conventional mechanisms of electron acceleration.

Are you presenting on behalf of collaborations or institutions?

Yes. MAGIC collaboration

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Session Classification: Observational results

Track Classification: Main track