

*Contributed Talk //*

Active Galactic Nuclei (AGNs)



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*Session 9 //*

Friday, 8 September @ 14:00 SAST

Blazars are well-known as sources of HE ( $> 100$  MeV) to VHE ( $> 100$  GeV) gamma-ray emissions. Furthermore, they have demonstrated that high-energy radiative processes play an important role in active galactic nuclei (AGNs) [1, 2], such as inverse-Compton (IC) produced gamma-rays. According to the unified scheme for radio-loud AGNs [3], radio galaxies are the parent class of the blazar population. However, the misaligned radio galaxies were not detected in the HE gamma rays by early-generation instruments. Naturally one would expect radio galaxies as the parent population of blazars, to be intrinsic HE and possibly VHE gamma-ray emitters. This is confirmed by recent VERITAS, MAGIC and HESS detections (see references within [4]), and later by other instruments (see [5]). The early works by [4, 6, 7] have shown that secondary electron/positron pairs can become efficiently isotropized in AGN environments leading to off-axis HE – VHE gamma-ray cascades. We extend this work by including a more realistic Shakura-Sunyaev (SS) accretion disk model, in addition to the isotropic external radiation fields considered by [4, 6, 7]. We present the preliminary results of the interplay between two external radiation fields, namely the broad-line region (BLR) and UV emission from the SS accretion disk. We discuss some details that may be interesting as a consequence of geometrical interactions between secondary pairs and accretion disk photon directions. We also discuss future developments for this work.

## References

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