A search for VHE emission from passive supermassive black holes

G. Pedaletti, S. Wagner, W. Benbow, for the H.E.S.S. Collaboration

1 Landessternwarte, Universität Heidelberg, Königstuhl, 69117 Heidelberg, Germany
2 Max-Planck-Institut für Astronomie, Königstuhl, 69117 Heidelberg, Germany
3 Max-Planck-Institut für Kernphysik, PO Box 103980, 69029 Heidelberg, Germany

gpedalet@lsw.uni-heidelberg.de

Abstract: Jets of Active Galactic Nuclei (AGN) are established emitters of Very High Energy (VHE; >100 GeV) gamma rays. In addition, VHE radiation is expected to be emitted from the vicinity of Supermassive Black Holes (SMBH) irrespective of their activity state. Accreting SMBH rotate and generate a dipolar magnetic field. In the magnetosphere of the spinning black hole acceleration of particles can take place in the field gaps. VHE emission from these particles is feasible via leptonic or hadronic processes. Therefore quiescent systems, where the lack of a strong photon field allows the VHE emission to escape, are candidates for emission. The H.E.S.S. experiment has observed passive SMBH in nearby galaxies of different masses. We describe the observations and the results of searches for VHE emission from those SMBH. We will discuss the constraints set by those observations in the context of different models predicting VHE emission from passive SMBH.

Results

Results of H.E.S.S. observations of passive SMBH will be presented at the conference.