

## H.E.S.S. observations of the unprecedented gamma-ray outburst of PKS 0903-57

*Monday 2 September 2024 15:15 (15 minutes)*

The blazar PKS 0903-57 underwent a huge gamma-ray outburst in early 2020, where the gamma-ray flux increased by more than an order of magnitude and the gamma-ray peaked energy increased by almost a factor 100. Follow-up observations with H.E.S.S. over 6 nights reveal a complex evolution of the gamma-ray component suggesting time- and energy-dependent acceleration and cooling processes. The X-ray domain is less active but still varies in flux by a factor of a few with a stable spectral index. The optical domain is hampered by the presence of a Galactic star merely 0.7" away from the radio position of PKS 0903-57. The total optical flux including the star and the blazar is variable within a factor of few, but modeling of the ground state and the flaring state suggests that the optical blazar flux may vary up to a factor 10. The characteristics of the source suggest that PKS 0903-57 is an FSRQ, even though modeling in both ground and flaring state requires low magnetic field values of less than 0.1G. The SEDs derived during the H.E.S.S. observations are reproduced with a leptonic model employing a variable magnetic field, as well as variable electron densities and minimum and maximum Lorentz factors.

**Primary author:** ZACHARIAS, Michael (LSW Heidelberg, Germany)

**Co-authors:** Dr WIERZCHOLSKA, Alicja; Dr BI, Baiyang; Dr LENAIN, Jean-Philippe; Dr PITA, Santiago

**Presenter:** ZACHARIAS, Michael (LSW Heidelberg, Germany)

**Session Classification:** Parallel 2