

# Study of the hadronic synchrotron mirror model for orphan flares in blazars - Application to 3C279

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Blazars are a class of Active Galactic Nuclei (AGN), found in the centres of elliptical galaxies, that are radio loud and have a small angle between the jet and the observer's line of sight. In some cases, flaring events in one frequency band are not accompanied by flaring in other bands. Such events are called orphan flares. The causes of this variability and conditions in and location of the high energy emission region are not completely understood. As a possible explanation for rapid orphan gamma-ray variability, the hadronic synchrotron mirror model has been suggested in previous work. A TeV orphan flare was observed on the 28th of January 2018 by the H.E.S.S. observatory from 3C 279. A primary flare was observed 11 days earlier by Fermi-LAT. The hadronic synchrotron mirror model, is applied to this flare. A study is done using the SED and multi-wavelength light curve results to see which parameters provide the best fit and to draw conclusions about the radiation mechanism that caused this orphan flare. A search for neutrino emission is also conducted to establish if orphan flares are a possible source.

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