



# Analysis of the historical observations of Cygnus X-3 with the MAGIC telescopes



Luis Barrios-Jiménez<sup>1,2</sup>

1 Instituto de Astrofísica de Canarias (IAC)

2 Universidad de la Laguna



2nd UNDARK School

# The MAGIC telescopes

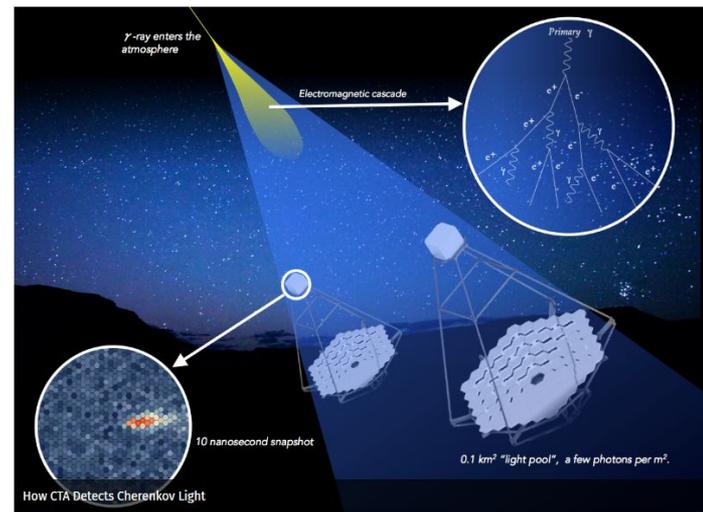
## Imaging Atmospheric Cherenkov Telescopes:

- Detect Cherenkov radiation produced when a gamma-ray enters the atmosphere.
- Reconstruct the energy and direction of the incident photon from the images of the shower.

## The MAGIC Telescopes:

- Two 17 m Cherenkov telescopes located in the island of La Palma, Spain.
- Energy range:  $\sim 30$  GeV - 100 TeV.

[Aleksić, J. +, 2016]



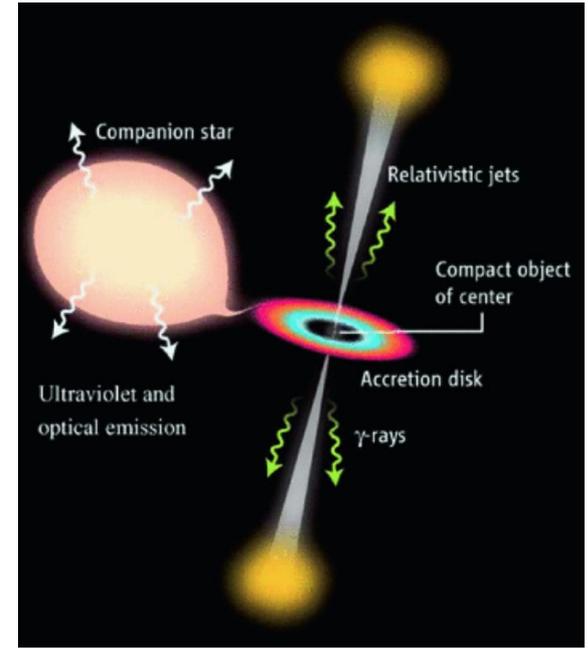
# Cygnus X-3

## Microquasars (MQs):

- Binary systems made of a compact object (CO) accreting material from a companion star and emitting relativistic jets [Fender, R., 2006].

## Cygnus X-3:

- Microquasar located at 9.7 kpc and with an orbital period of 4.8 h [Reid, M. J. +, 2023; van der Klis, M. +, 1981].
- Consistent detection at High Energies (HE;  $E > 100$  MeV) + Detected at Ultra High Energies (UHE;  $E > 100$  TeV). But never detected at VHE ( $E > 100$  GeV) [Fermi-LAT collaboration, 2009; LHAASO, 2025; Aleksic, J. +, 2010]



→ Study 130 hours of observations of Cygnus X-3 with MAGIC determine the origin of the VHE emission and the system properties. (in prep.).