

Executive summary

In this contribution we describe an intensity interferometer implemented in MAGIC as well as some results to show its performance.

These are relevant because they open a new observation channel for Imaging Atmospheric Cherenkov Telescopes, which does not necessarily compete for time with very high energy observations, increasing the scientific reach of these instruments.

What we have done is to implement the necessary hardware and software to measure stellar diameters with sub-milliarcsecond resolution, and we have tested the performance with a set of stars with known diameters. In addition, we have explored some novel approaches to reduce the systematics associated to the technique and to extend the range of stellar diameters that can be measured.

With this we have proven that regular intensity interferometric observations are possible, and that the MAGIC interferometer can measure the stellar diameter with a preliminary systematic error better than 20%. Additionally, we have proven that it is possible to extend the range of stellar diameters to be measured using observations with a single telescope, and that it is possible to directly measure one of the main sources of uncertainties of the intensity interferometry technique.