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Intensity interferometry with the MAGIC telescopes

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Due to their large mirror size, fast response to single photons, sensitivity and telescope baselines in the order of 100 m, Imaging Atmospheric Cherenkov Telescopes are ideally suited to make intensity interferometry observations. In 2019 a test readout setup was installed in the two 17-m diameter MAGIC telescopes to allow performing interferometry measurements with them. The first on-sky measurements were able to detect correlated intensity fluctuations consistent with the stellar diameters of three different stars: Adhara (ϵ CMa), Benetnasch (η UMa) and Mirzam (β CMa). After the upgrade of the setup in 2021, MAGIC is now equipped with a high duty cycle intensity interferometer, already in operation. A technical description of the interferometer and first results of several known and yet unknown stellar diameter measurements are presented.

Keywords

photodetection;interferometry;Cherenkov Telescopes

Collaboration

MAGIC

other Collaboration

Subcategory

Experimental Methods & Instrumentation

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