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Studies of the Extragalactic Background Light with the MAGIC telescopes

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A measurement of the Extragalactic Background Light (EBL) from a combined likelihood analysis of blazar spectra detected by the MAGIC Telescopes is presented. EBL is the optical-infrared diffuse background light accumulated during the history of the Universe, directly emitted (mostly) by stars or reprocessed by dust, providing unique information about the history of galaxy formation. The low energy photons from EBL interact with very high energy photons from blazars, leaving an energy-dependent imprint on their gamma-ray spectra. The study of the spectra can be used to constrain the EBL density at different wavelengths and its evolution in time. The spectra of 12 blazars in the redshift range z=0.03 to z=0.94, are used to improve previous constraints on EBL by MAGIC. Novel results on the EBL evolution with time will be presented. Combined spectra of Fermi-LAT and MAGIC data are also used to extract wavelength-resolved EBL measurements.

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