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M@TE - Monitoring at TeV Energies

Blazars are extremely variable objects emitting radiation across the electromagnetic spectrum and showing variability on time scales from minutes to years. For the understanding of the emission mechanisms, simultaneous multi-wavelength observations are crucial. Various models for flares predict simultaneous flux increases in the X-ray and in the gamma-ray band or more complex variability patterns, depending on the dominant process responsible for the gamma-ray emission. Monitoring at TeV energies is providing important information to distinguish between different emission mechanisms. To study the duty cycle and the variability time scales of the object, an unbiased data sample is essential, and a good sensitivity and continuous monitoring are needed to resolve variability on smaller time scales. A dedicated long-term monitoring program at TeV energies has been started by the FACT project more than four years ago. The success of the project clearly illustrated that the usage of silicon based photo sensors (SiPMs) is ideally suited for long-term monitoring. They provide not only an excellent and stable detector performance, but also allow for observations during bright ambient light like full moon minimizing observational gaps and increasing the duty cycle of the instrument. The observation time in a single longitude is limited to six hours. To study typical variability time scales of few hours to one day, the ultimate goal is 24/7 monitoring with a network of small telescopes around the globe (DWARF project). The installation of an Imaging Air Cherenkov Telescope is planned at the site in San Pedro Martir in Mexico. For the M@TE (Monitoring at TeV energies) telescope, a mount from a previous experiment is being refurbished and will be equipped with a camera using the new generation of SiPMs. In the presentation, the status of the M@TE project will be reported and the scientific potential, including the possibility to extend monitoring campaigns to 12 hours by coordinated observations together with FACT, will be outlined.

Authors: Dr DORNER, Daniela (Universität Würzburg); Dr TOVMASSIAN, Gagik (Instituto de Astronomia, UNAM); Dr GONZALEZ, Maria Magdalena (Universidad Nacional Autonoma de Mexico); Dr ALFARO, Ruben (Instituto de Fisica, UNAM); Dr DICHIARA, Simone (Instituto de Astronomia, UNAM); Prof. BRETZ, Thomas (RWTH Aachen University)

Presenter: Dr GONZALEZ, Maria Magdalena (Universidad Nacional Autonoma de Mexico)