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FAMOUS - a fluorescence telescope using SiPMs

The FAMOUS telescope is a prove-of-concept study for the application of silicon photomultipliers (SiPMs) in fluorescence telescopes. Such telescopes detect the fluorescence light emitted by molecules in the Earth's atmosphere when excited by secondary particles of an extended air shower. Today's instruments are using photomultiplier tubes for photon detection. The 61-pixel FAMOUS camera makes use of the advantages of SiPM sensors, like long-term stability and simple circuitry – resulting in a robust and compact design. The system is built in a 50 cm-diameter aluminium tube with refractive optics driven by a Fresnel-lens. Improvements towards the recent seven-pixel prototype include a more light-weight 50 cm carbon fibre tube, more efficient light concentrators and a more reliable power supply. Robust and attractively priced wide field-of-view telescopes can improve the duty cycle allowing long-run monitoring in the multi-messenger context. First measurements and the status of the 61-pixel telescope will be presented.

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