

Characterization results of a large format 4k x 4k EMCCD

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ABSTRACT

Scientific EMCCD cameras have demonstrated excellent imaging performance under extreme low light conditions. Photon counting capability combined with a very low dark current offered by the CCD technology have made EMCCDs the detector of choice for high-performance applications such as time resolved spectroscopy and low light imaging. However, future astronomical instrumentation requires high spatial resolution while commercially available EMCCD devices are limited by a relatively modest area format of (1k x 1k). To address this requirement Université de Montréal and e2V Technologies have jointly developed a 4k x 4k EMCCD, the CCD282. This paper presents the results of cryogenic characterization of CCD282 operated with Nüvü Caméras' CCD Controller for Counting Photons version 3. Advantages of a novel large format EMCCD over existing technology are discussed with focus on demanding applications such as high-resolution spectroscopy, wide field photometry and hyperspectral imaging.

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