

# Ultraviolet sensitivity of a Teledyne-e2v EMCCD

Neil Rowlands<sup>1</sup>, Ken Smith<sup>1</sup>, Olivier Daigle<sup>2</sup>, Oleg Djazovski<sup>3</sup>, Alan Scott<sup>1</sup>, Alexander Beaton<sup>1</sup>, Andrew Wilson<sup>1</sup>

<sup>1</sup>Honeywell Aerospace, 303 Terry Fox Dr., Kanata, ON, K2K 2J1, Canada;

<sup>2</sup>Nüvü Cameras, 355 peel St, suite 603, Montreal, QC, H3C 2G9, Canada;

<sup>3</sup>Canadian Space Agency, 6767 route de l'Aéroport, Saint-Hubert, QC, J3Y 8Y9, Canada.

## ABSTRACT

The UV imaging performance of a CCD201 (1k x 1k frame transfer EMCCD) with e2v's 'astro no-coat' process was assessed. One of the five engineering devices procured was installed in a flexible liquid nitrogen cooled EMCCD camera produced by NüVü Camēras. The camera was then mounted in a test vacuum chamber along with a McPherson UV monochromator so that the UV performance could be assessed. A NIST traceable photodiode was used for the absolute calibration. The resulting responsive QE was found to be 28% at 180 nm rising to 48% at 150 nm. The quantum yield was found to be considerably lower than results from CCDs where delta-doping has been used to improve the responsive quantum efficiency. This may be an advantage since quantum yield also produces an extra contribution to the noise at least when used in analog mode. We consider the implications of these results for future UV auroral imaging instrumentation.

This talk will be given during the:

SPIE Astronomical Telescopes + Instrumentation 2018  
High Energy, Optical, and Infrared Detectors for Astronomy VIII, Session 3: CCD  
Sunday, June 10th, 2018  
Paper Number: 10709-13; Time 3:10 PM – 3:30 PM