Contribution ID: **78** Type: **Contributed Talk**

Large Area Near Infrared Detectors for Astronomy

Tuesday 13 September 2005 14:15 (15 minutes)

The technology of Infrared detectors has made significant advances over the last decade evolving from their small size and number of pixels to the present large format 2k x 2k pixel devices. These large format near infrared detectors (1 –2.5μm) are now routinely available to the astronomical community and are based on HgCdTe grown by either an LPE or MBE process on silicon or CdZnTe substrates. The performance of these devices, such as quantum efficiency, dark current generation and read noise etc. has also been significantly improved. The advent of these devices in buttable packages has prompted the build of large focal plane mosaics for wide field imaging in which the U.K. is a world leader. Four Hawaii-2 (2k x 2k) detectors mounted in a 2 x 2 sparse mosaic have recently been commissioned in the Wide Field Camera at U.K.I.R.T. on Hawaii. More ambitiously, the VISTA IR camera currently being built in the U.K. for an ESO telescope in Chile, will have a sparse mosaic of 16 (2k x 2k) VIRGO detectors mounted at its focal plane. We present details of the performance and characteristics of the Hawaii-2 and VIRGO detectors based on test results measured at the UKATC. We will also present details on the next generation of detectors.

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Session Classification: S5 : Applications in Astronomy and Astrophysics

Track Classification: Applications in Astronomy and Astrophysics