

**Title:** Tuning the spectral distribution of p-i-n a-SiC : H devices for colour detection

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**Abstract:** ZnO:Al/p (SiC:H)/i (Si:H)/n (SiC:H) large area image and colour sensor are analysed. Carrier transport and collection efficiency are investigated from dark and illuminated current-voltage (I-V) dependence and spectral response measurements under different optical and electrical bias conditions. Results show that the carrier collection depends on the optical bias and on the applied voltage. By changing the electrical bias around the open circuit voltage it is possible to filter the absorption at a given wavelength and so to tune the spectral sensitivity of the device.

Transport and optical modelling give insight into the internal physical process and explain the bias control of the spectral response and the image and colour sensing properties of the devices. (c) 2004 Elsevier B.V. All rights reserved.

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