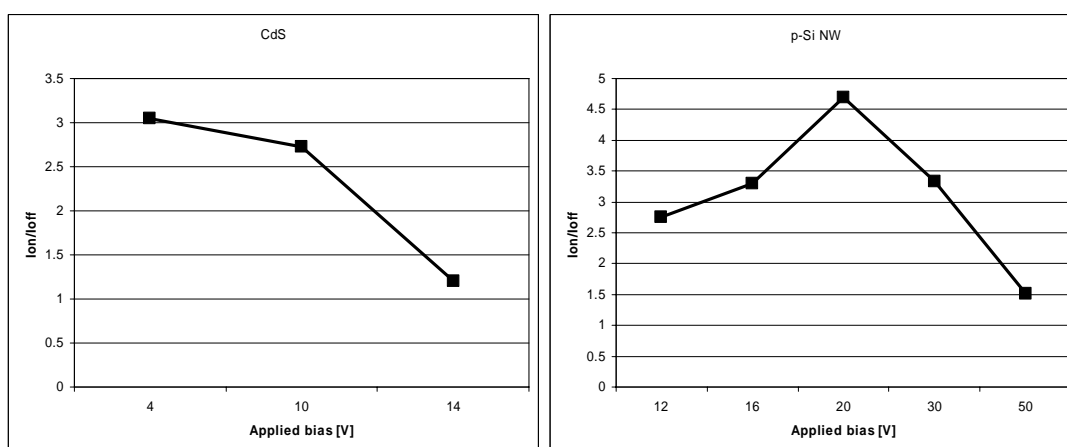


## Supplementary Materials:

### Gain in single n-CdS and p-Si nanowire devices.

The ratio of photocurrent ( $I_{on}$ ) and dark current ( $I_{off}$ ) is shown for a single n-CdS and a single p-Si nanowire at variable bias. The gain is low with values of only 3-5 observed.



### Spectral Response

The spectral response of the crossed nanowire nanoAPD was measured by using a UV/VIS spectrophotometer. The photocurrent spectrum shows that the CdS nanowire is the predominant absorbing medium with the maximum at the CdS bandgap.

