

4. Conclusion

In conclusion we have evaluated the potential of In(Ga)As quantum dots grown on silicon as photodiodes by characterising their electrical and optical properties. The responsivity spectra showed a peak related to quantum dot transition at 1280 nm of 5 mA/W, with an absorption tail extending beyond 1300 nm. The measured dark currents are over three orders of magnitude lower than those for Ge on Si detectors and we have observed avalanche gain at 1310 nm. We have also evaluated the influence of the QCSE and considered the relevance of this to developing a quantum dot based optical modulator grown on silicon.

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