Qeios

Peer Review

Review of: "A High-Performance All-Silicon Photodetector Enabling Telecom-Wavelength Detection at Room Temperature"

Horst Zimmermann[1]

1. Technische Universität Wien, Austria

The device and its results are certainly interesting. However, the content needs some improvement:

The doping concentration and resistivity of the “i-Si” must be included.

Page 6: “Thermal effects” are not an acceptable explanation for opt. power < 1e-5 W.

Page 8: The defects GENERATE electron-hole pairs thermally!!! Only less than higher doses in other works. Also, Page 12.

The calculated bandwidth of 5.9 GHz is not reliable. Usually, carrier drift and/or carrier diffusion limit the bandwidth. Therefore, the doping concentration will allow us to estimate whether the device is fully depleted or not. But really resilient is only a measured bandwidth.

Page 13: How were the n and p regions annealed? The AC frequency and amplitude used for the CV measurements are missing.

Declarations

Potential competing interests: No potential competing interests to declare.

doi.org/10.32388/P5PA4A