Electronic Supplementary Material (ESI) for Nanoscale.

Supplementary Information for

Transfer-Printing-Enabled GeSn Flexible Resonant-Cavity-Enhanced Photodetectors with Strain-Amplified Mid-Infrared Optical Responses

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S1. Effect of substrate on resonance cavity

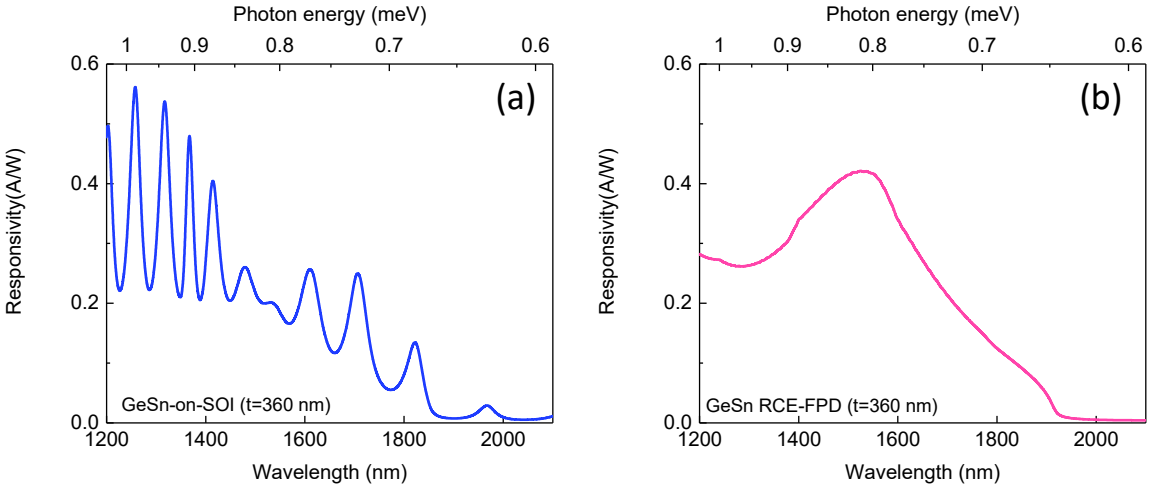

Fig. R1. Simulated responsivity spectra of the GeSn-on-SOI PD and GeSn RCE-FPD under flat conditions with a fixed GeSn thickness of 360 nm.

To further show the effect of substrate on resonant cavity of the photodetectors, we have performed finite-element-method (FEM) simulations. Figure R1 shows the simulated responsivity spectra of the GeSn-on-SOI PD and GeSn RCE-FPD with a fixed GeSn thickness of 360 nm. (For the simulation, the carrier collection efficiency is set to 100%). The results show several resonant peaks in the responsivity spectra, suggesting the resonant cavity effect. In addition, the GeSn-on-SOI PD has a smaller FSR of~95 nm, while the GeSn RCE-FPD has a larger FSR of 430 nm, showing the substrate effect on the resonant cavity.