Nanoscale

Supporting Information

Transferable single-layer GeSn nanomembrane resonant-cavity-enhanced photodetectors for 2 µm band optical communication and multi-spectral short-wave infrared sensing

Qimiao Chen,[*a] Shaoteng Wu,[*a,b] Lin Zhang,[a] Hao Zhou,[a] Weijun Fan[a] and Chuan Seng Tan[a,c]

SI1. A multi-spectral SWIR sensing system based on GeSn nanomembrane resonant-cavity-enhanced photodetectors

Figure S1 shows a potential multi-spectral sensing system based on the GeSn nanomembrane resonant-cavity-enhanced photodetectors (GeSn NM RCE PDs) with specific spectral responses (sensitive to band 1 or band 2). Multi-pixel array, consisting of GeSn NM RCE PDs with specific spectral responses, receives the reflected/transmitted/emitted light from the object. Then, the captured raw images are decomposed into sub-sampled images and further demosaicked to generate the final multispectral image.

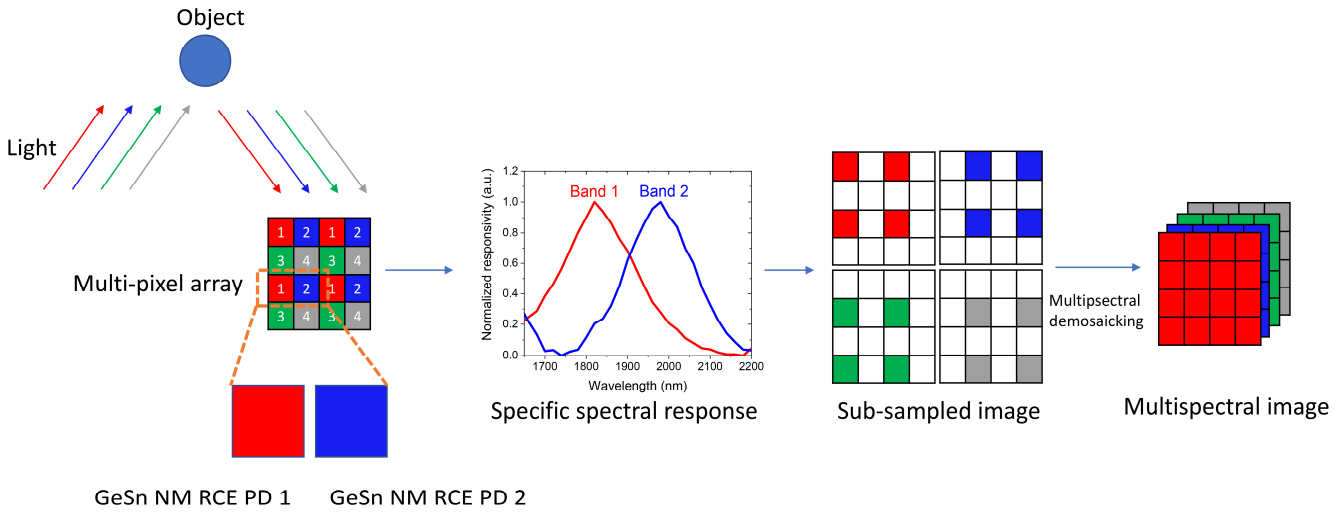

Figure S1 A schematic of a GeSn-nanomembrane-resonant-cavity-enhanced-photodetector-based multi-spectral SWIR sensing system.

[a.] *School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore 639798, Singapore. E-mail: chenqm@ntu.edu.sg; wst@semi.ac.cn*
[b.] *State Key Laboratory of Superlattices and Microstructures, Institute of Semiconductors, Chinese Academy of Sciences, Beijing 100083, P.R. China*
[c.] *Institute of Microelectronics, A*STAR, Singapore 117685, Singapore.*