**Miniaturized Spectrometers with Bandgap Engineering**

*Aalto University, Finland*

**Zhipei Sun**

**Email: Zhipei.sun@aalto.fi**

Miniaturized spectrometers, which can obtain incident spectra using a combination of device spectral responses and reconstruction algorithms, are essential for on-chip and implantable applications. Highly sensitive spectral measurement using a single detector allows the footprints of such spectrometers to be scaled down while achieving spectral resolution approaching that of benchtop systems. I will present our recent results on high-performance computational spectrometers with various bandgap engineering methods. Our approaches provide new routes toward ultra-miniaturization and offer unprecedented performance in accuracy, resolution, and operation bandwidth.

**Short Bio:**

**Zhipei Sun** is Professor of Photonics and the head of the Photonics Research Group at the Department of Electronics and Nanoengineering of Aalto University, Finland. He earned his PhD from the Institute of Physics, Chinese Academy of Sciences, in 2005. Currently, he is actively involved with the European Research Council advanced grant, European quantum flagship, Academy of Finland Photonics Flagship, and Academy of Finland Centre of Excellence on quantum technology. His research interests include nonlinear optics, nanophotonics, and ultrafast photonics.