

## **High Sensitivity Photodetecting Arrays Based on Flexible Optoelectronic Fibers**

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The broad objective of the proposed research is to fundamentally address the needs and challenges for high sensitive detection of optical fields at very large length scales. To measure optical fields emanating from weak sources is required in many important areas from astronomy to quantum communications. In particular, the ability to measure such optical fields at very large length scales has received rapidly growing attentions for applications which require maximized photon collection. Achieving this enables applications in distributed sensing networks, flexible optoelectronic devices, smart fabrics, quantum communications, and astronomic sensing. These opportunities necessitate the high demands of developing a new fabrication method that is capable of integrating multi-functionality into a flexible platform with well-defined architectures. A scalable fabrication approach is therefore proposed here to allow the fabrication of such flexible devices with precise control over nanometer-level architecture, composition, and functionality at the extended length scales.