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**Educational background**

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- Graphene devices and applications
- Electrochemical biosensing technologies
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# Printable Sensing Materials for Low-Power Consumption Applications

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As fast advancements of wireless communications, different kinds of technologies have been proposed to improve welfare of human being. Most of these technologies rely on an important characteristic, i.e. low-power consumption. Similar issue has also been raised in the research field of sensing. To address this unmet-need, a series of low-power sensing materials will be presented in this work. Utilizing printing technologies, functional polymers can be implemented as low-power sensing materials. In addition, these printable sensing polymers can be easily integrated with various systems, such as mobile or wearable systems. Therefore, printable low-power sensing materials can be developed and implemented. In this talk, different printable sensing materials, such as humidity, formaldehyde, NO, and $CO_2$, will be demonstrated. For instance, a good humidity sensing material can be developed by blending nanoparticles with PEDOT:PSS; a formaldehyde sensing material can be implemented by reduced graphene oxide (RGO) mixed with poly(methyl methacrylate) (PMMA); and a high-humidity-selectivity $CO_2$ sensing material can be demonstrated by PEDOT:PSS/EB-PANI composites. As a consequence, printable gas sensing materials would be potential sensors for next-generation technologies, such as Internet-of-Things or intelligent systems.

**Keywords:** printable sensing material, gas sensors, low-power sensor,