

## **3D printed energy harvesting devices based on biocompatible piezo-electret materials**

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Piezo-electret polymers are materials that can convert mechanical energy into electricity and vice versa. These materials consist of a solid polymer matrix containing gas-filled pockets, making them useful for various applications like sensors and energy harvesters. Common examples include polypropylene, polyethylene, and Teflon-based polymers. However, the environmental impact of these synthetic materials is a concern. This talk will present innovative 3D-printed kinetic energy harvesting systems based on low-cost, eco-friendly composite foamed polymers, such as polylactic acid blended with natural high-performance integrated with graphene electrodes. These sustainable piezo-electret materials offer a promising avenue to develop environmentally friendly energy conversion technologies.