

## ABSTRACT SUBMISSION



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### **Nanogenerator - Energy Harvesting and Delivery for Self-powered Human Interface Devices**

Sang-Woo Kim

*Sungkyunkwan University (SKKU), Suwon, 16419, Korea*

Presenter's email: [kimsw1@skku.edu](mailto:kimsw1@skku.edu)

#### **ABSTRACT (NO MORE THAN 500 WORDS:)**

Energy harvesting systems based on triboelectric nanomaterials are in great demand, as they can provide routes for the development of self-powered devices which are highly flexible, stretchable, mechanically durable, and can be used in a wide range of applications. Our recent research interest mainly focuses on the fabrication of high-performance triboelectric nanogenerators (TEGs) based on various kinds of nanomaterials. Flexible TEGs exhibit good performances and are easy to integrate which make it the perfect candidate for many applications, and therefore crucial to develop. In this presentation, I firstly introduce the fundamentals and possible device applications of TEGs, including their basic operation modes. Then the different improvement parameters will be discussed. As main topics, I will present a couple of recent achievements regarding highly stretchable transparent flexible TEGs, textile-based wearable TEGs, highly robust and efficient TEGs with multifunctional materials, etc. The recent research and design efforts for enhancing power generation performance of TEGs to realize self powering of wearable and body-implanted electronics will also be discussed in this talk. Finally I am going to introduce a 2D materials-based tribotronics for possible future application toward tactile sensors, robots, security, human-machine interfaces, etc.