

2. Self-Powered Sensors and Actuators

Introduction: Electrical energy is essential for electronics to do work. Energy harvesting (also known as energy scavenging) is the technology of converting the ambient energy present in the environment into electrical energy for use in powering autonomous electronic devices or circuits. Given the rapid development of energy harvesting technologies, it is possible to fully power these electronic devices or circuits by using the harvested energy. In this process, energy is sufficient to support the normal work of these electronics. Generally, researchers think they are “self-powered”, which is a new concept in the area of energy harvesting. Self-powered devices, especially sensors and actuators due to their numerous uses in practical applications, are very valuable in promoting the development of the Internet of Things, implantable biomedical electronics, and ultra-low power consumption microelectronics to avoid high-cost or high-risk maintenance. Currently, self-powered devices or circuits mainly focus on some special scenarios with an enclosed space or low possibility for wire communications, such as self-powered biomedical electronics in vivo, self-powered tire pressure monitoring systems, self-powered 5G/IoT systems for environmental remote monitoring, and so forth. This special session focuses on the topic of “self-powered sensors and actuators”, but is not only limited to sensors and actuators. More interesting works around the topic of “self-powered” are welcomed.

Topics:

- Self-powered sensors
- Self-powered actuators
- Self-powered circuits
- Self-powered IoT systems
- Self-powered 5G wireless communications systems
- Ultralow power consumption electronics/circuits
- Self-powered human machine interfaces

Session Organizer(s)

- **Zeqi Lu**, Associate Professor
🏠: School of Mechanics and Engineering Science, Shanghai University
✉: luzeqi@shu.edu.cn
☎: +86 18521762968
- **Hailing Fu**, Professor
🏠: School of Automation, Beijing Institution of Technology
✉: hailing.fu@bit.edu.cn
- **Qiongfeng Shi**, Professor
🏠: School of Electronic Science and Engineering, Southeast University
✉: qiongfeng@seu.edu.cn
☎: +86 18751963245
- **Minglu Zhu**, Associate Professor
🏠: School of Mechanical and Electrical Engineering, Soochow University
✉: mlzhu@suda.edu.cn
☎: +86 18651189911
- **Zhiran Yi**, Assistant Professor
🏠: School of Mechanical Engineering, Shanghai Jiao Tong University
✉: yizhiran@sjtu.edu.cn
☎: +86 18258705841