



Contribution ID: 100

Type: Poster

Hybrid Energy Harvester based on Triboelectric Nanogenerator and Solar Cell

Wednesday 8 December 2021 10:30 (1h 30m)

Developing clean energy lies the heart of sustainable development of human society. Triboelectric nanogenerator (TENG) originating from Maxwell's displacement current is a new type of energy harvester for harnessing ambient mechanical energy based on the coupling of triboelectrification and electrostatic induction effect. Compared with other counterparts, owing to the light-weight, low-cost, and easily fabricated, TENG has become one of the most promising candidates in replacement of conventional fossil fuels and attracted worldwide attention in the past years. However, to further increase the energy harvesting efficiency and broaden application fields, integrating the TENG with other kinds of energy harvesters in one device is a possible way to meet these needs. In the present work, a TENG based hybrid energy harvester is designed and fabricated on the flexible polyethylene terephthalate (PET) substrate. This hybrid device consists of a single-electrode mode TENG component and a PbS quantum dots (QDs) based solar cell component, which can harness both mechanical and solar energy from ambient environment to directly generate electricity.

Authors: XIAO, TIANXIAO (Physik-Department, Lehrstuhl für Funktionelle Materialien, Technische Universität München); CHEN, Wei (Technische Universität München); CAO, Wei (TU München); ROTH, Stephan (DESY / KTH); MÜLLER-BUSCHBAUM, Peter (TU München, Physik-Department, LS Funktionelle Materialien)

Presenter: XIAO, TIANXIAO (Physik-Department, Lehrstuhl für Funktionelle Materialien, Technische Universität München)

Session Classification: Poster Session II

Track Classification: Material Science