摩擦纳米发电机可穿戴器件

Triboelectric Nanogenrator Wearables

摘要

近年来，可穿戴电子设备在人体生命信息采集、医疗护理、物联网、智能终端等领域大放光彩，有着巨大的市场潜力及应用前景，而摩擦纳米发电机(Triboelectric Nanogenerator, TENG)自2012年由王中林团队首次报导以来，由于其具有可自驱动性、便携性、可重复性，因此基于摩擦纳米发电机的可穿戴器件引起了科研人员的关注。在近年来的研发中，科研人员针对摩擦纳米发电机的输出性能，在摩擦材料的选取、表面的修饰和改性以及摩擦纳米发电机的结构设计上不断的进行改进与创新。在可穿戴器件的应用领域，

科研人员将摩擦纳米发电机的输出特性与应用结合，研发了摩擦电驱动的微机械执行器作为可穿戴能源器件、摩擦电主动式微机械传感器作为可穿戴传感器件以及基于摩擦纳米发电机的可穿戴过滤材料等，这些基于摩擦纳米发电机的可穿戴器件输出性能稳定、实验结果优异有着巨大的发展应用价值。综述了摩擦纳米发电机的研究现状以及摩擦纳米发电机近几年来在可穿戴应用领域上的研究现状。

关键词 摩擦纳米发电机 可穿戴器件 可穿戴电源 可穿戴传感器 过滤材料

Abstract

In recent years, wearable electronic devices have been widely used in the fields of human life information collection, medical care, Internet of things, intelligent terminals and so on. They have great market potential and application prospects. However, triboelectric Nanogenerator, TENG，since it was first reported by Wang Zhonglin's team in 2012, due to its self driving, portability and repeatability, the wearable device based on friction nano generator has attracted the attention of researchers. In recent years, according to the output performance of friction nano generator, researchers have made continuous improvement and innovation in the selection of friction materials, surface modification and modification, as well as the structure design of friction nano generator. In the application field of wearable devices, researchers combine the output characteristics of friction nano generator with application, and develop micro mechanical actuator

driven by friction electricity as wearable energy device, active micro mechanical sensor driven by friction electricity as wearable sensor and wearable filter material based on friction nano generator. These wearable devices based on triboelectric Nanogenerator The output performance of the device is stable and the experimental results are excellent. This paper will review the research

status of friction nano generator and the research status of friction nano generator in wearable applications in recent years.

Keywords: Triboelectric Nanogenerator wearable device wearable power supply wearable sensor filter material