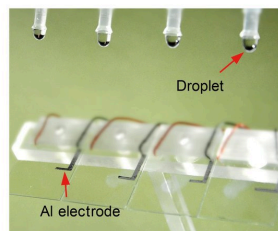
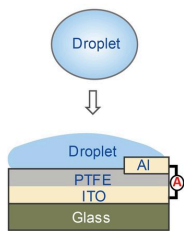



Liquid Droplet Powered Electricity Generator



 **Energy & Environment**

Energy Conservation/Generation/Management/Storage (Battery)
 Nanotechnology and New Materials



IP Status
 Patent filed



Technology Readiness Level (TRL)  

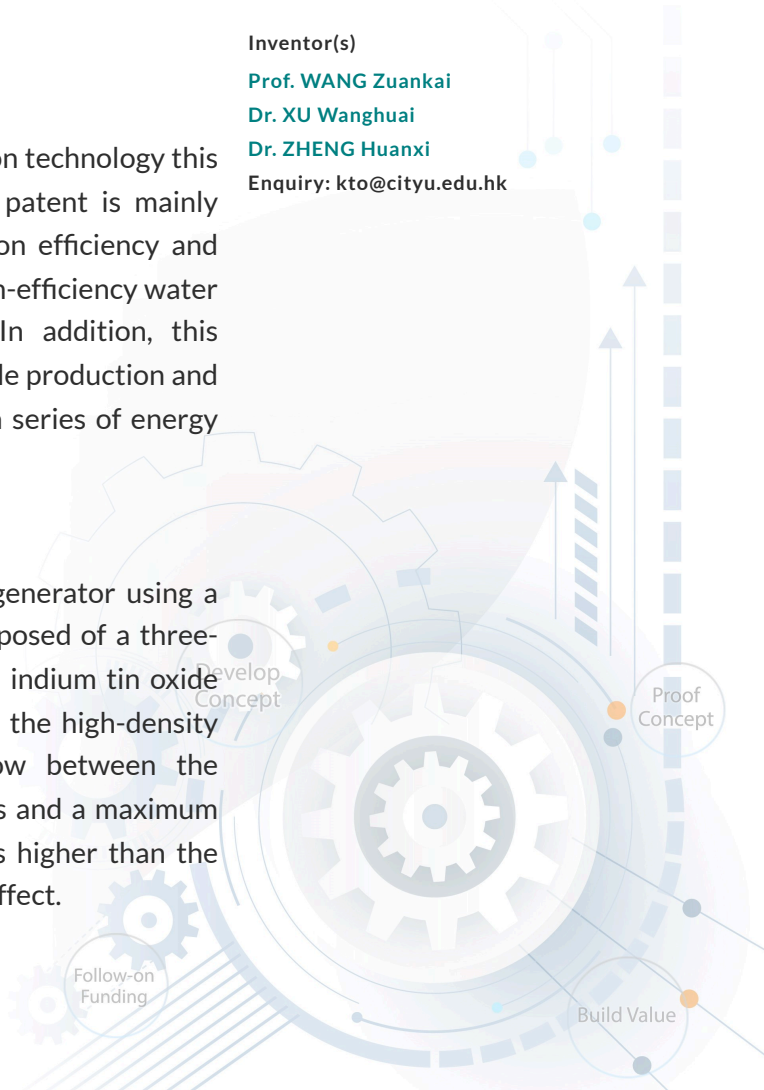
Opportunity

We have mastered the scientific mechanism and preparation technology this patent relies on. The current research direction of this patent is mainly focused on how to further improve the energy conversion efficiency and average power of the droplet generator, and to achieve high-efficiency water energy harvesting under various working conditions. In addition, this patented technology needs further support to promote scale production and commercialization so that the technology will transform a series of energy harvesting devices and production systems in the future.

Technology

This patent proposes a novel type of droplet electricity generator using a transistor-like architecture. This droplet generator is composed of a three-layer structure of the aluminum electrode, PTFE film, and indium tin oxide electrode. With repeated droplets impact and separation, the high-density charge accumulated on the indium tin oxide will flow between the electrodes, generating an open circuit voltage of 140 volts and a maximum power output of 50.1 W/m², which is thousands of times higher than the conventional droplet generator based on the triboelectric effect.

Inventor(s)
Prof. WANG Zuankai
Dr. XU Wanghui
Dr. ZHENG Huanxi
 Enquiry: kto@cityu.edu.hk



Advantages

- High power density and energy conversion efficiency
- High output durability
- Scalable production
- Simple fabrication method
- Low cost

Applications

- Public sector, water energy harvesting devices
- New energy source technology enterprises, wave energy harvesting devices
- High-tech electronic enterprise, self-powered devices and flexible electronic devices

