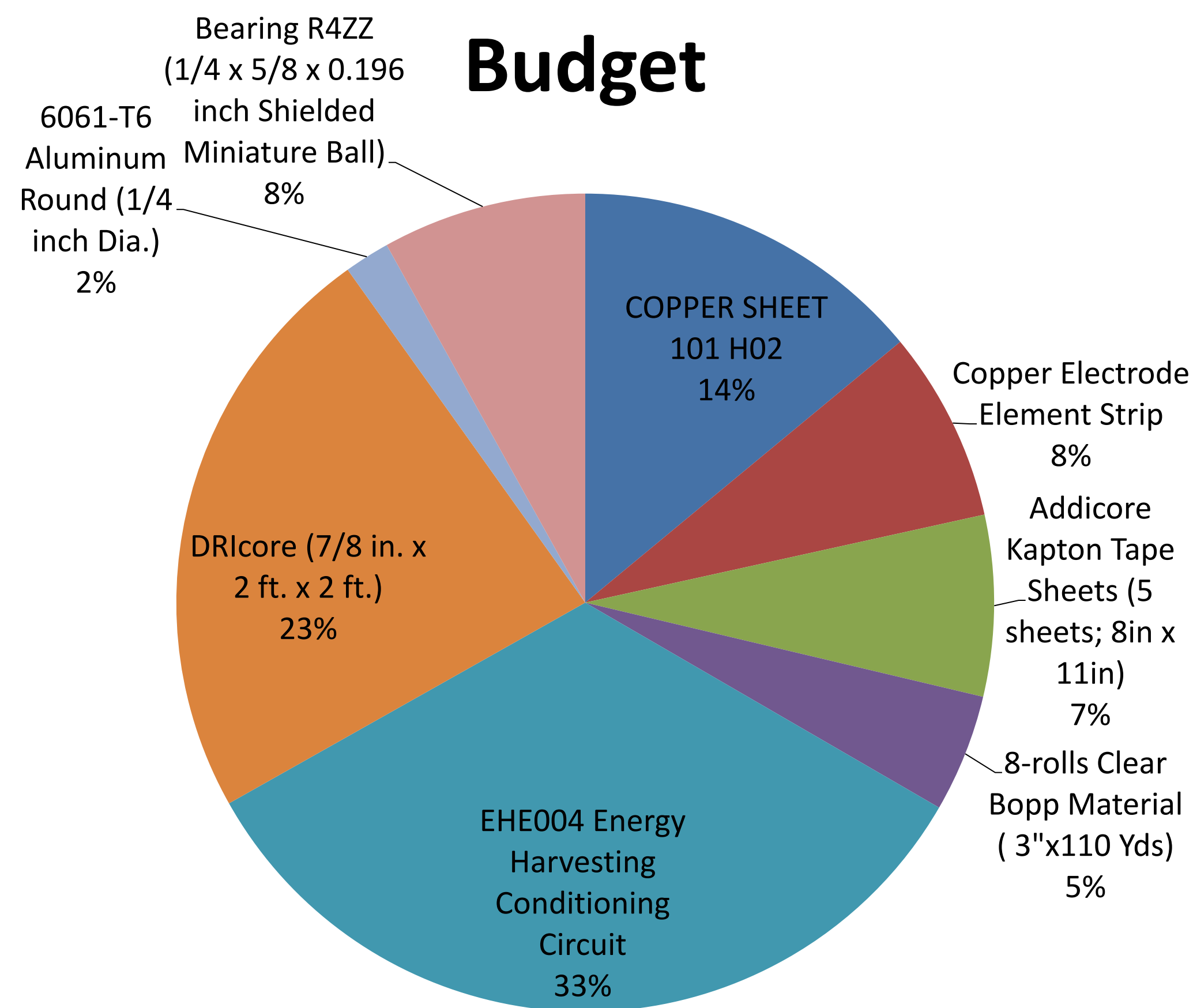


Micro-Meso Scale Triboelectric Energy Harvesting

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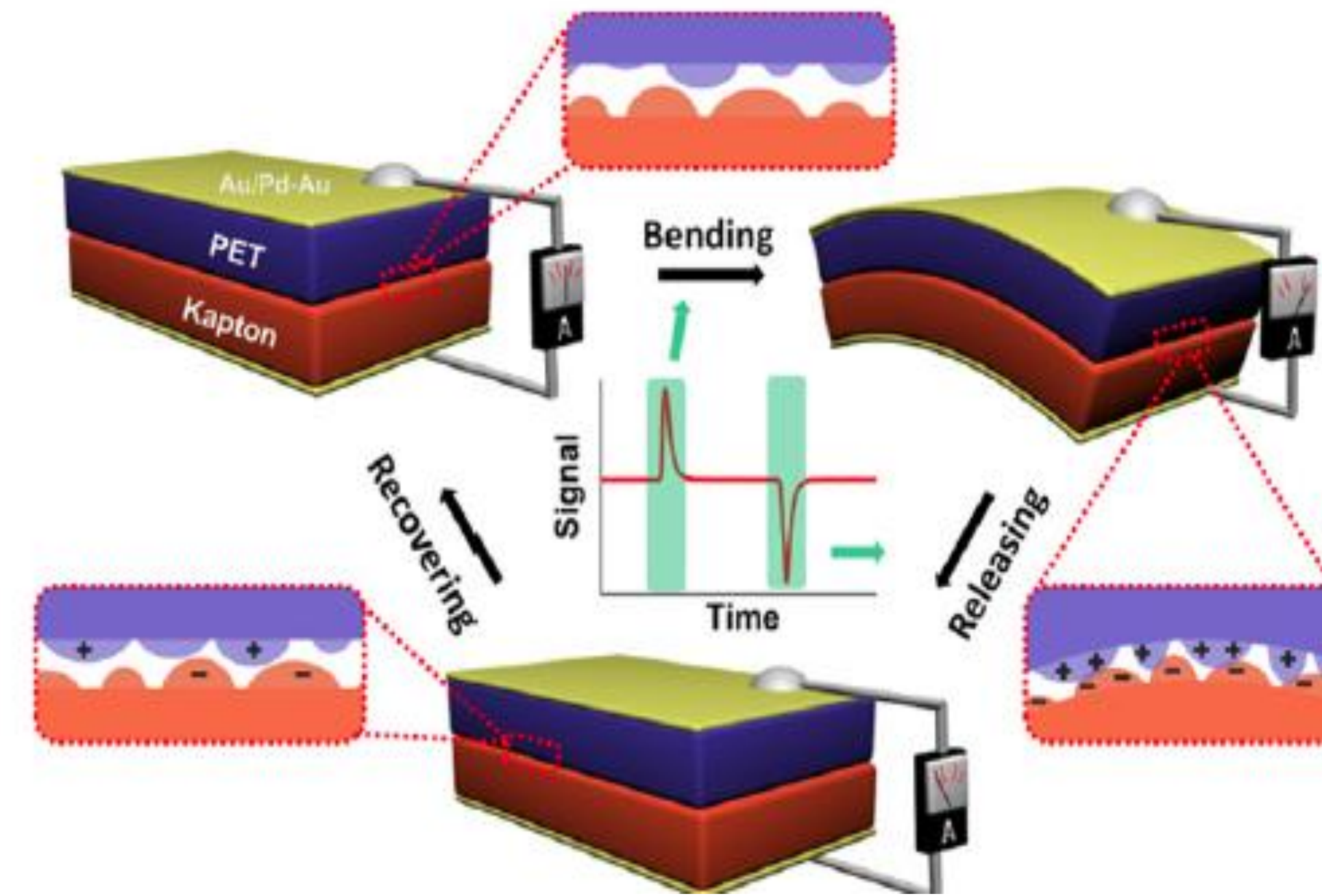
Abstract

Triboelectric energy is being researched to be used as a potential source of alternative energy. Triboelectric energy is generated by the electron exchange process when the two materials are rubbed together. We hope to harness and store the voltage resulting from the electron exchange by attaching electrodes to both materials.



Goal

- Develop a thorough understanding of how triboelectricity works.
- Understand what parameters influence the ability to generate electricity.
- Develop a practical application in which triboelectric technology can be implemented.
- Develop a working model that effectively emulates a practical application in which triboelectric energy can be used and harnessed.



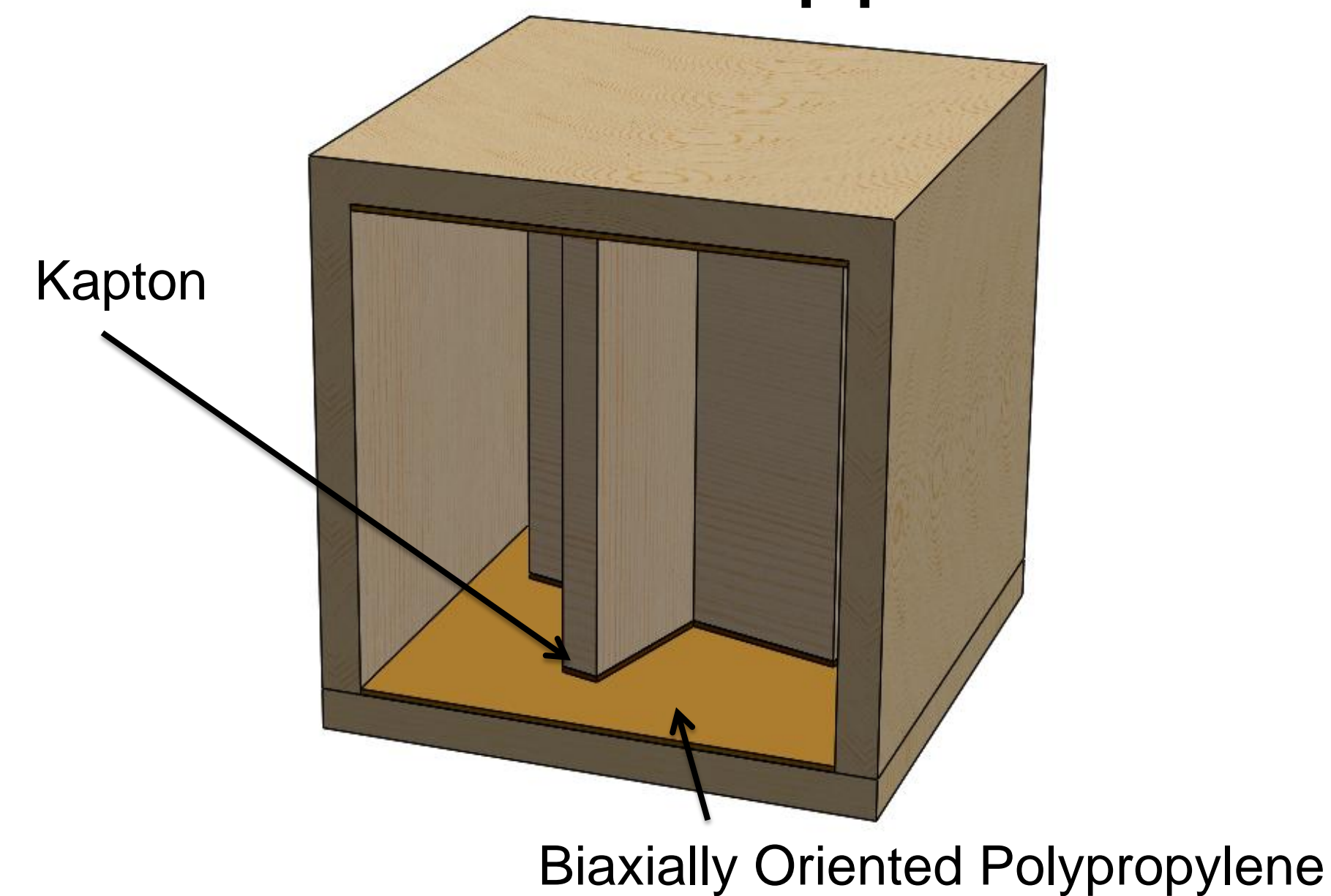
Flexible triboelectric generator" Feng-Ru Fan, Zhong-Qun Tian, Zhong Lin Wang, Nano Energy, 2012, 1 (2), 328-334

Application

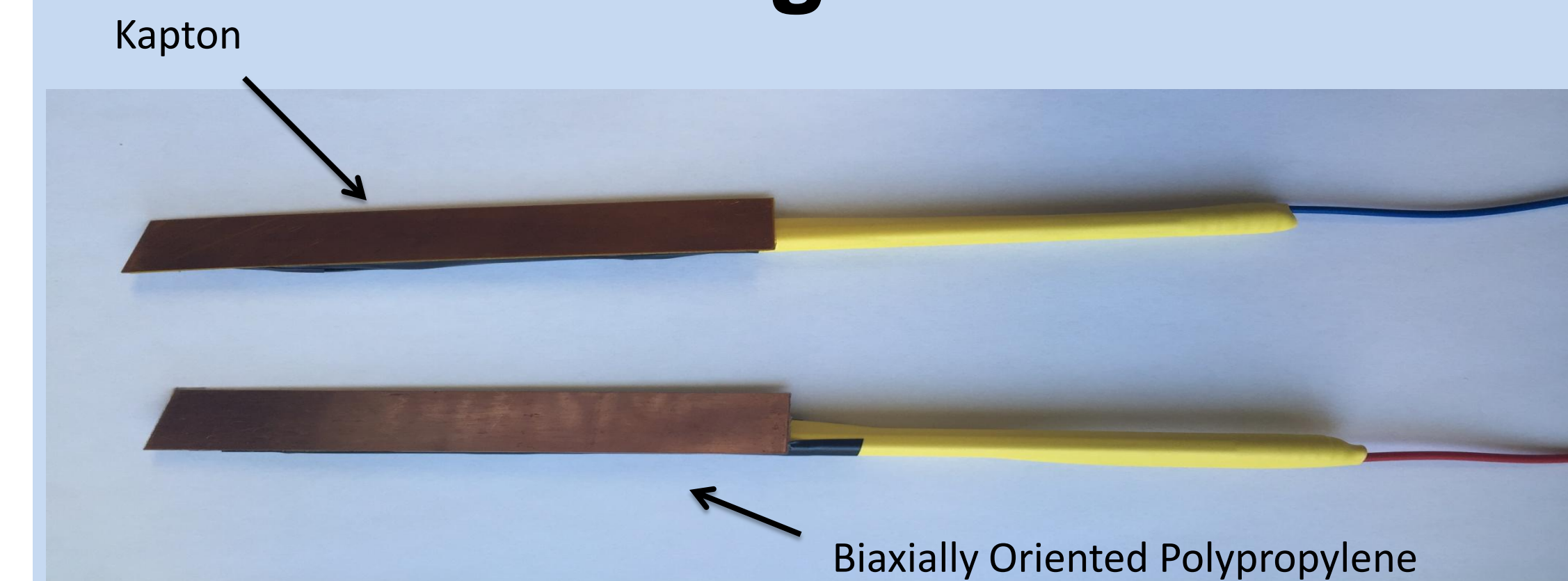
This technology is proposed to be incorporated into revolving doors that are used in public areas. As the door rotates, friction is generated between the edge of the door and the connecting surface. This application is advantageous because of two elements.

- 1) People will generate energy by not doing more additional work than they normally do. Hence, energy that is already produced is being harnessed.
- 2) The frequency that revolving doors are used is almost constant, especially during working hours.

CAD Model Application



Testing Model



These electrodes are applied with the triboelectric materials and are rubbed together to simulate the friction caused by rotating a revolving door.

