

EES Catalysis

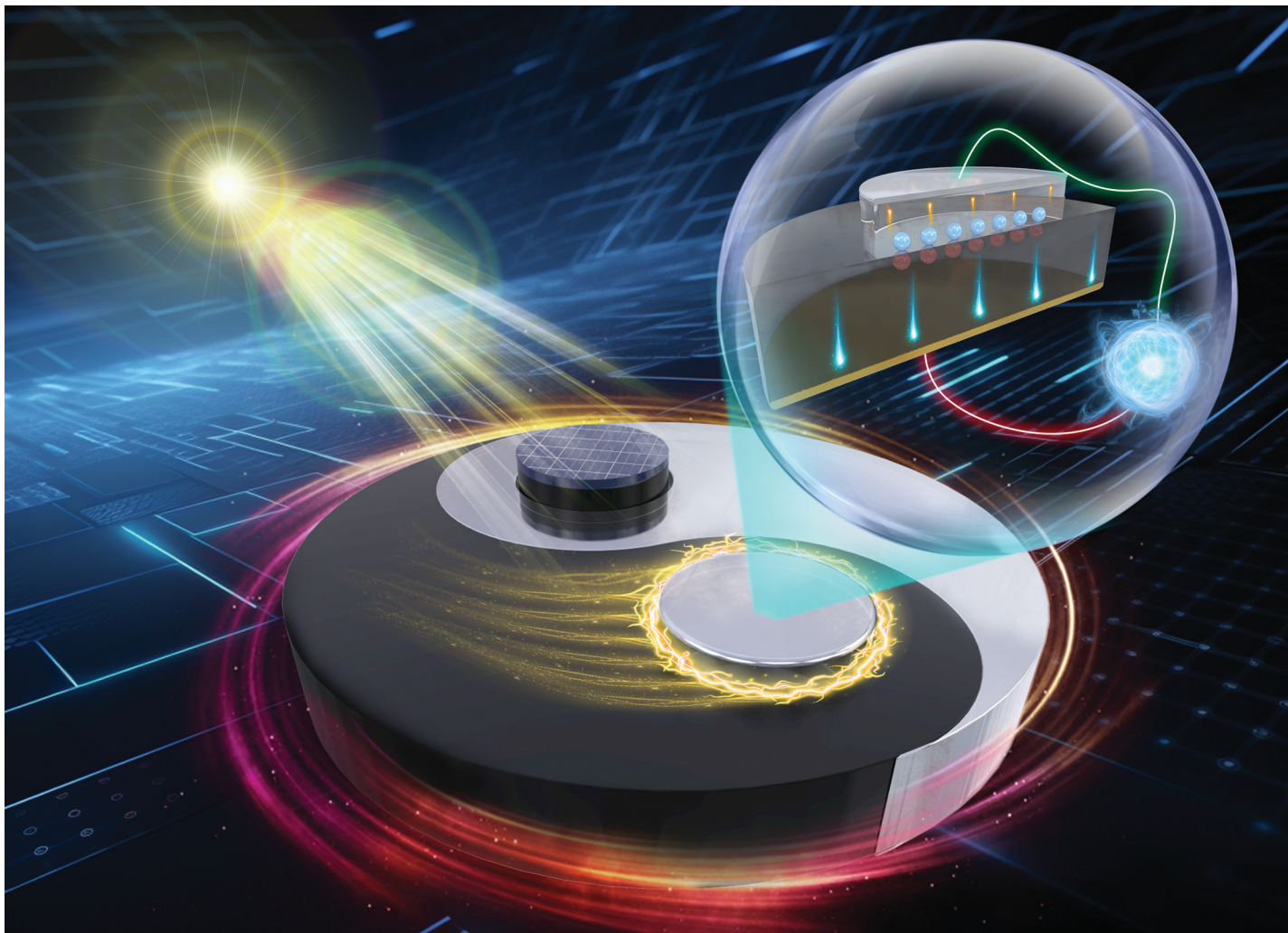
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Showcasing research from Professor Zhengbao Yang's laboratory, Department of Mechanical and Aerospace Engineering, The Hong Kong University of Science and Technology, Hong Kong, China.

Triboelectric junction: a model for dynamic metal-semiconductor contacts

The tribovoltaic effect at dynamic semiconductor-based interfaces has gained significant attention in the energy-harvesting field. However, its in-depth mechanism remains to be studied. Herein, we define a "triboelectric junction" model for analyzing dynamic metal-semiconductor contacts, where a space charge region induced by the triboelectric effect dominates the electron-hole separation process. The junction direction and strength determine the output polarity and magnitude, respectively. This work provides a new perspective on the mechanism of dynamic metal-semiconductor contacts, which opens up avenues for further fundamental discoveries and potential applications.

As featured in:



See Zhengbao Yang *et al.*,
Energy Environ. Sci., 2024, **17**, 149.