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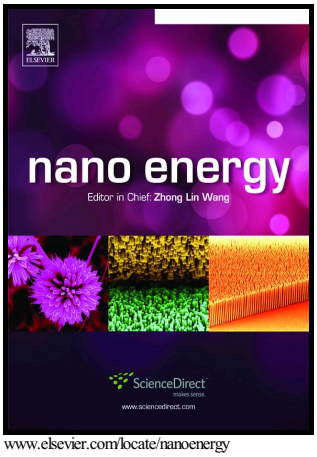

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Abstract:

Triboelectric nanogenerators and sensors have been widely adopted for diversified energy harvesting and sensing applications, but the demonstrations of 3D information sensing and controlling are very limited. In this paper, we present a novel self-powered virtual reality 3D-control sensor (VR-3D-CS) based on triboelectric mechanism for controlling the attitude (both the position and rotation) of object in 3D virtual space. This innovative, cost-effective, simple-designed sensor has a symmetric 3D structure with eight separated sensing electrodes and two touching spheres as the interactive interface with human fingers for 3D force