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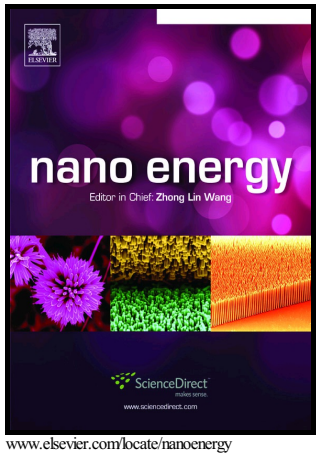

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Abstract

Tactile sensors have broad applications in human-machine interfacing technologies. In this work, we report a type of a thin-film-based flexible integrated triboelectric sensing matrix (ITESM) that is of high resolution and large area. It has a total of 3,600 sensing units and a resolution of 50 dots per inch (dpi), which are 14 times and 25 times of the state-of-the-art works on the triboelectric sensor array, respectively. When touched by an external object, the ITESM generates a voltage signal in its bit electrode lines and word electrode lines due to the combination of triboelectrification and electrostatic induction. With the assistance of a signal processing circuit that