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Sacrificial template method to fabricate highly sensitive porous capacitive pressure sensor for full pulse waveforms detection

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FIGURES & TABLES

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Abstract

Flexible pressure sensors with high sensitivity have drawn a lot of attention due to their potential in a range of applications, including tactile sensing, physiological monitoring, and flexible electronics. The commercialization of these sensors is still hampered by the difficulty of getting great sensitivity while keeping cheap production costs. The low-cost method for making capacitive sensors described in this study uses a sacrificial template made of a porous PDMS polymer and a dielectric layer based on MWCNT composites. When MWCNT is added to PDMS, the composite polymer's higher dielectric constant results in the sensor's high sensitivity of 4.9 kPa^{-1} below 1 kPa . Due to its extreme sensitivity, it can recognize minute changes in tactile pressure and pulse waveforms.

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