HIGHLY SENSITIVE CAPACITIVE PRESSURE SENSORS OVER A WIDE PRESSURE RANGE ENABLED BY THE HYBRID RESPONSES OF A HIGHLY POROUS NANOCOMPOSITE

October 15th, 2021
12:15 - 12:45pm

Past research aimed at increasing the sensitivity of capacitive pressure sensors has focused on developing dielectric layers with air gaps and higher dielectric constants. However, such strategies have only been effective in improving sensitivities at low pressure ranges. To overcome this obstacle, a flexible hybrid response pressure sensor composed of an conductive porous nanocomposite (PNC) laminated with an ultrathin dielectric layer was devised. The PNC exhibits hybrid piezoresistive and piezocapacitive responses, resulting in significantly enhanced sensitivities over wide pressure ranges.

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