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Enhancing Sensitivity in Flexible MEMS Capacitive Pressure Sensors: A Review

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Abstract

Enhancing the sensitivity of flexible MEMS capacitive pressure sensors is vital for applications in wearable electronics, healthcare, and tactile sensing. Recent advancements focus on material innovations like graphene and silver nanowires, structural designs such as pyramidal microstructures and interdigitated electrodes, and fabrication techniques like laser-induced graphene and multilayer architectures. These approaches improve sensitivity, broaden detection ranges, and enhance response times. Despite progress, challenges in stability and fabrication complexity remain. This review summarises current strategies, offering insights into advancing sensor performance for emerging applications. © Published under licence by IOP Publishing Ltd.

Indexed keywords

Engineering controlled terms

Flexible electronics; Structural design; Wearable sensors

Engineering uncontrolled terms

Capacitive pressure sensors; Electronic healthcare; Electronic sensing; Graphenes; Inter-digitated electrodes; Interdigitated electrodes; Materials innovations; Microstructure electrodes; Silver nanowires; Tactile sensing

Engineering main heading

Graphene

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Abstract

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