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Preparation and Characterization of Hybrid Perovskite Enhanced with PVDF for Pressure Sensing

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Abstract : In this paper pressure detectors were synthesized and characterized using hybrid perovskite/PVDF composites as an active layer. Methylammonium lead iodide ($MAPbI_3$) was synthesized from methylammonium iodide (MAI) (CH_3NH_3I) and lead iodide (PbI_2). Composites of perovskite/PVDF using different weight ratio were prepared as the active material. PVDF with weights percentages of 6%, 8%, and 10% was used. All prepared materials were investigated by x-ray diffraction (XRD), Fourier transforms infrared spectrum (FTIR) and scanning electron microscopy (SEM). A Versastat 4 Potentiostat Galvanostat instrument was used to perform the current-voltage characteristics of the fabricated sensors. The pressure sensors exhibited a voltage increase with applying different forces. Also, the current-voltage characteristics (CV) showed different effects with applying forces. So, the results showed a good pressure sensing performance.

Keywords : perovskite semiconductor, hybrid perovskite, PVDF, Pressure sensing
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