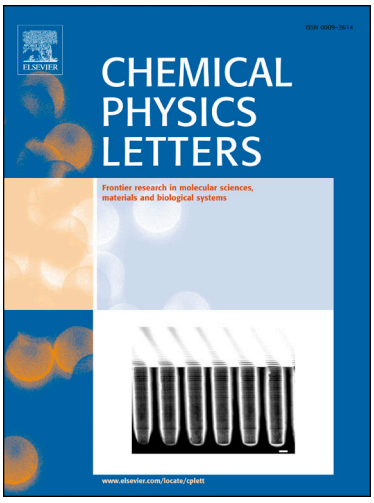

Research paper

Van der Waals pressure sensors using reduced graphene oxide composites

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Van der Waals pressure sensors using reduced graphene oxide composites

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Keywords: van der Waals forces, vacuum pressure sensor, graphene nano ribbon, reduced graphene oxide

Abstract

Reduced graphene oxide (RGO) films intercalated with various polymers were fabricated by reaction-based self-assembly, and their characteristics as vacuum pressure sensors based on van der Waals interactions were studied. At low temperature, the electrical resistances of the samples decrease linearly with increasing vacuum pressure, whereas at high temperature the variation of the electrical resistance shows secondary order curves. Among all samples, the poly vinyl alcohol intercalated RGO shows the highest sensitivity, being almost two times more sensitive than reference RGO. All samples show almost the same signal for repetitive sudden pressure changes, indicating reasonable reproducibility and durability.

Keywords; Pressure sensor, van der Waals force, composites, intercalation, reduced graphene oxide

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