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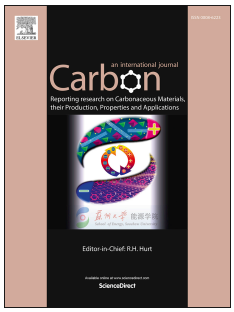

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Scalable inkjet printing of shear-exfoliated graphene transparent conductive films

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Abstract: In this study, we demonstrate scalable and efficient inkjet printing of graphene flexible transparent conducting films (TCFs). The highly concentrated and stable graphene ink (3.2 mg/mL) that is dominated by 4-layer graphene flakes is achieved by means of shear exfoliation process. The printed graphene TCFs with DC conductivity of ~4×10^4 S/m (sheet resistance 260 Ω/□ coupled with optical transparency of 86%) without intentional doping are readily obtained. Excellent flexibility and air stability of the printed graphene TCFs allow their potential applications in different flexible opto-electronics devices. Systematic investigation of the inkjet printing of graphene and the annealing effect on the graphene TCFs is presented.

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