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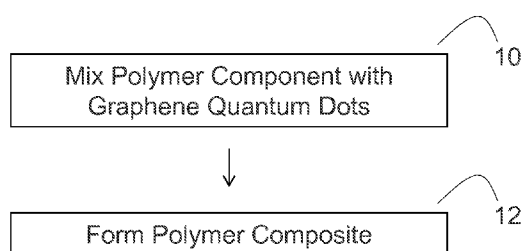


FIG. 1

(57) Abstract: Various embodiments of the present disclosure pertain to methods of forming polymer composites that include polymers and graphene quantum dots. The methods occur by mixing a polymer component (e.g., polymers, polymer precursors and combinations thereof) with graphene quantum dots. In some embodiments, the polymers are in the form of a polymer matrix, and the graphene quantum dots are homogeneously dispersed within the polymer matrix. In some embodiments, the graphene quantum dots include, without limitation, coal-derived graphene quantum dots, coke-derived graphene quantum dots, unfunctionalized graphene quantum dots, functionalized graphene quantum dots, pristine graphene quantum dots, and combinations thereof. Additional embodiments of the present disclosure pertain to polymer composites that are formed by the methods of the present disclosure. In some embodiments, the polymer composites of the present disclosure are fluorescent and optically transparent. In some embodiments, the polymer composites of the present disclosure are in the form of a film.

