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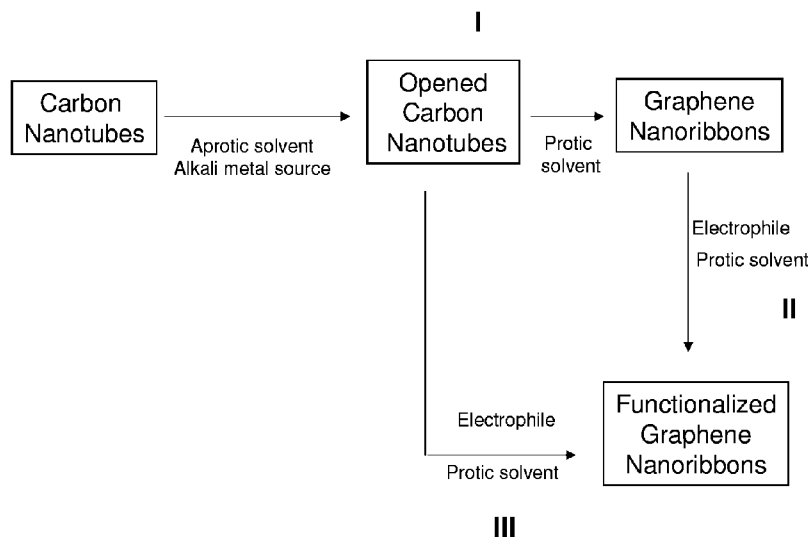


FIG. 1

(57) Abstract: The present invention provides methods of preparing functionalized graphene nanoribbons. Such methods include: (1) exposing a plurality of carbon nanotubes (CNTs) to an alkali metal source in the presence of an aprotic solvent to open them; and (2) exposing the opened CNTs to an electrophile to form functionalized graphene nanoribbons (GNRs). The methods may also include a step of exposing the opened CNTs to a protic solvent to quench any reactive species on them. Additional methods include preparing unfunctionalized GNRs by: (1) exposing a plurality of CNTs to an alkali metal source in the presence of an aprotic solvent to open them; and (2) exposing the opened CNTs to a protic solvent to form unfunctionalized GNRs.