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(54) Title: TECHNIQUES FOR RAPID AND EFFICIENT INTERCALATION-DOPING OF LARGE-AREA MULTI-LAYERED GRAPHENE SHEETS

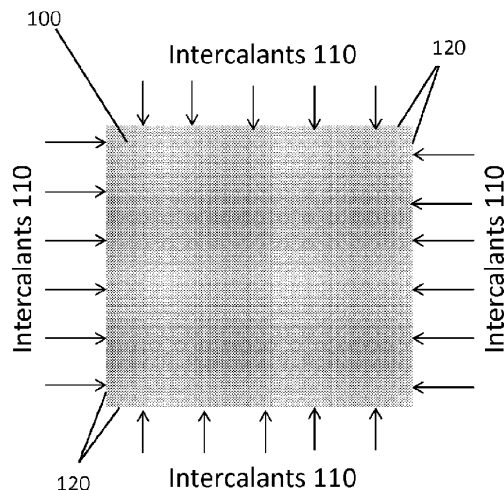


Figure 1

(57) Abstract: A transparent or semi-transparent conducting thin film structure or pattern which facilitates the insertion of dopant atoms, ions, or molecules into layered 2D materials, the film structure including: a layered 2D material, an electrically isolative material, where the electrically isolative material is disposed below the layered 2D material, where the layered 2D material has at least one layer, where the layered 2D material is divided into islands of the 2D material, where separation of the islands of 2D material with respect to each other is greater than 0.5 nm and less than 1 meter, and where the islands of 2D material are intercalation doped with at least one dopant, and where the at least one dopant includes intercalation doping agents.

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