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(54) Title: CARBON CVD DEPOSITION METHODS TO MITIGATE STRESS INDUCED DEFECTS

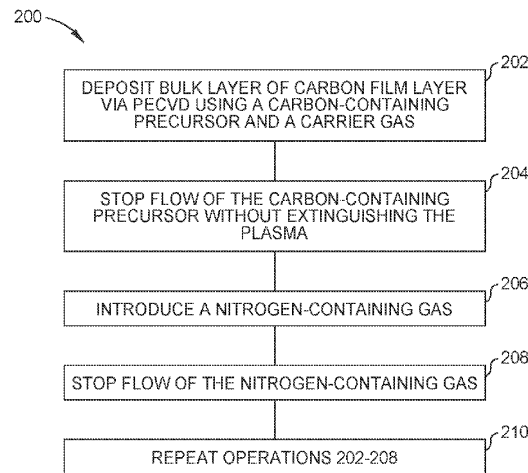


FIG. 2A

(57) Abstract: A method includes flowing a carbon-containing precursor and a carrier gas into a processing volume having a substrate positioned therein, generating a plasma in the processing volume by applying a first RF bias to a substrate support to deposit a first portion of carbon film onto the substrate, and terminating flow of the carbon-containing precursor while maintaining flow of the carrier gas to maintain the plasma within the processing volume. The method also includes flowing a nitrogen-containing gas into the processing volume and ionizing the nitrogen-containing gas in the presence of the plasma, exposing the substrate having the carbon film thereon to the ionized nitrogen-containing gas for a time period less than three seconds, and terminating flow of the nitrogen-containing gas while maintaining the plasma and reintroducing the carbon-containing precursor into the processing volume in the presence of the plasma to deposit a second portion of the carbon film.

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