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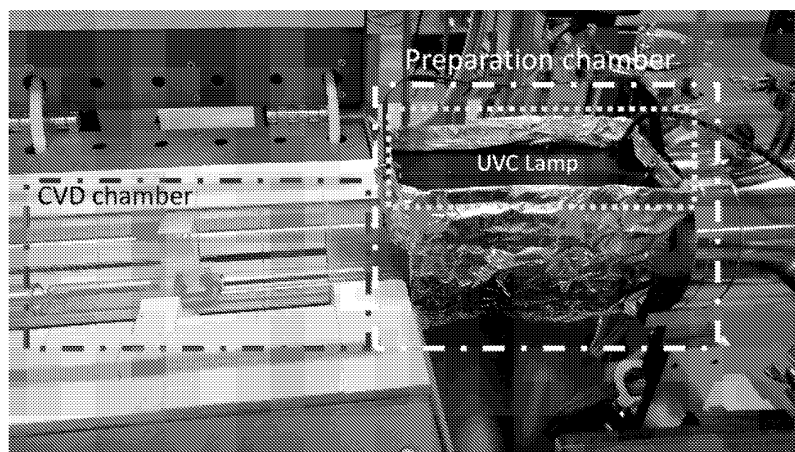
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(54) Title: A PREPARATION CHAMBER FOR CLEANING AND REPAIR SAPPHIRE SURFACE FOR THE EPITAXIAL GROWTH OF COMPOUND MATERIALS

FIG. 1



(57) Abstract: Herein disclosed is an apparatus configured to pre-treat a substrate for epitaxial growth of a crystalline material thereon. The apparatus includes a chamber including an opening to receive the substrate for housing therein, a gas inlet which directs a gaseous precursor into the chamber, wherein the gaseous precursor includes oxygen, and a light source externally coupled to the chamber, wherein the light source and the chamber are configured to have the light source project ultraviolet radiation into the chamber to ionize oxygen therein into ozone for passivating the substrate, wherein the ultraviolet radiation comprises a wavelength which is sufficient to ionize the oxygen into ozone. Also, herein disclosed is a system operable to have epitaxial growth of a crystalline material on a pre-treated substrate, the system includes the apparatus, which is operable to provide a pre-treated substrate, and a growth chamber arranged downstream of the apparatus to receive the pre-treated substrate directly from the apparatus, wherein the growth chamber is operable for epitaxial growth of a crystalline material on the pre-treated substrate.

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