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MATERIAL GROWTH

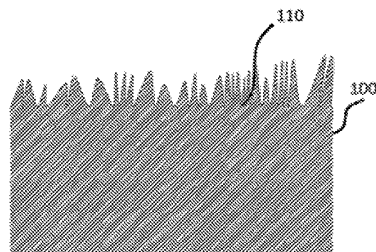


Fig. 1A

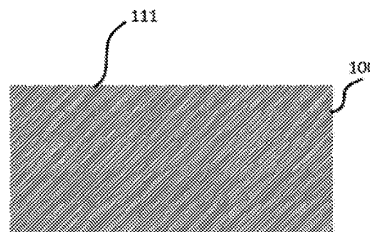


Fig. 1B

Fig. 1

(57) Abstract: A method for surface conditioning based on cyclic processing is disclosed. The method includes activating a surface, removing excess materials from the surface, applying a low-energy particle treatment to the surface, and repeating the above steps until the surface has a desired smoothness. This method can be applied to various surfaces, including semiconductor surfaces, metal surfaces, dielectric surfaces, and 2D material surfaces, as well as patterned and non-patterned surfaces. The low-energy particle treatment can be etching or deposition, and the process can be combined with ion beam shaping technology and angled particle beam etching for improved surface conditioning. A method of preparing a surface of a substrate and epitaxial material growth is also provided.

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