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(54) Title: NANOSTRUCTURES INCLUDING CONTROLLABLY POSITIONED AND ALIGNED SYNTHETIC NANOTUBES, AND METHODS OF THEIR MANUFACTURE

(57) Abstract: An integrated nanostructure comprises a microelectronic substrate having a surface; a catalyst disposed upon the surface of the microelectronic substrate and positioned thereupon within a first predetermined set of X and Y coordinates, wherein the catalyst is activated within a second predetermined set of X and Y coordinates defined within the surface of the microelectronic substrate; and a nanotube selectively disposed upon the activated second predetermined set of X and Y coordinates defined within the surface of the microelectronic substrate, such that the nanotube is controllably grown at a predetermined position upon the surface of the microelectronic substrate; wherein at least one selected from the group consisting of: (1) the disposition according to the first predetermined set of X and Y coordinates and (2) the activation of the catalyst according to the second predetermined set of X and Y coordinates is scaled with atomic precision.



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