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(54) **LOW-DISLOCATION-DENSITY EPITAXIAL LAYERS GROWN BY DEFECT FILTERING BY SELF-ASSEMBLED LAYERS OF SPHERES**

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(52) **U.S. Cl.**
USPC **117/96**; 117/98; 117/99; 117/104

(58) **Field of Classification Search** 117/96,
117/98, 99, 104

See application file for complete search history.

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(57) **ABSTRACT**

A method for growing low-dislocation-density material atop a layer of the material with an initially higher dislocation density using a monolayer of spheroidal particles to bend and redirect or directly block vertically propagating threading dislocations, thereby enabling growth and coalescence to form a very-low-dislocation-density surface of the material, and the structures made by this method.

17 Claims, 5 Drawing Sheets

