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(54) **PHOTOVOLTAIC CELL WITH LIGHT TRAPPING FOR ENHANCED EFFICIENCY**

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See application file for complete search history.

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(57) **ABSTRACT**

The efficiency of a photovoltaic cell is enhanced by light trapping using Mie-scattering nanostructures. In one embodiment, an array of nanocylinders is formed on the front surface of a silicon film to enhance forward scattering into the film, and an array of nanocylinders is formed on the back surface to enhance backscattering so that more light is absorbed within the silicon film. In an alternate embodiment, a mirror layer is formed on the back surface of the silicon film to reflect light within the film back toward the front-surface nanocylinder array.

**7 Claims, 5 Drawing Sheets**

