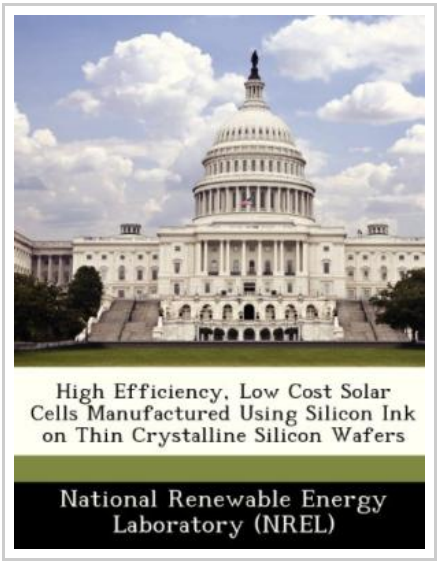

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High Efficiency, Low Cost Solar Cells Manufactured Using Silicon Ink on Thin Crystalline Silicon Wafers

By National Renewable Energy Laboratory (NREL)

Bibliogov, United States, 2012. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.Reported are the development and demonstration of a 17 efficient 25mm x 25mm crystalline Silicon solar cell and a 16 efficient 125mm x 125mm crystalline Silicon solar cell, both produced by Ink-jet printing Silicon Ink on a thin crystalline Silicon wafer. To achieve these objectives, processing approaches were developed to print the Silicon Ink in a predetermined pattern to form a high efficiency selective emitter, remove the solvents in the Silicon Ink and fuse the deposited particle Silicon films. Additionally, standard solar cell manufacturing equipment with slightly modified processes were used to complete the fabrication of the Silicon Ink high efficiency solar cells. Also reported are the development and demonstration of a 18.5 efficient 125mm x 125mm monocrystalline Silicon cell, and a 17 efficient 125mm x 125mm multicrystalline Silicon cell, by utilizing high throughput Ink-jet and screen printing technologies. To achieve these objectives, Innovalight developed new high throughput processing tools to print and fuse both p and n type particle Silicon Inks in a predetermined pat-tern applied either on the front or the back of the cell. Additionally,...

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