A Method for Producing Thin Layers of Crystalline Silicon without Wire-Sawing
Technology #15220

Applications

The invention can be used in photovoltaic devices such as single or dual omojunction devices, tunable voltage devices, and wafer splitting, among others.

Problem Addressed

Wire-sawn wafers are limited in thickness because of breakage and mechanical stability. Additionally, during the slicing process, a large fraction of material is lost as waste.

Technology

This invention describes a method to create thin, crystalline Si (tc-Si) layers, many of which can be grown and separated from the same crystalline silicon (c-Si) template.

Advantages

- Rapid production of tc-Si layers that do not require sawing wafers individually from a c-Si boule
- Enables thinner layer thicknesses than wire-sawing methods
- Cheap, quick, and lower energy consumption
- Significantly reduces kerf loss and silicon cost in modules
- Easy to form production line around the process, and template is re-used
- Enables more diverse array of silicon feedstock as well as more control over doping
- Easily fits into existing cell and module supply chain

Categories For This Invention:

Energy
Solar
Photovoltaics
Silicon PV

Intellectual Property:

Method for producing thin layers of crystalline or polycrystalline materials
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