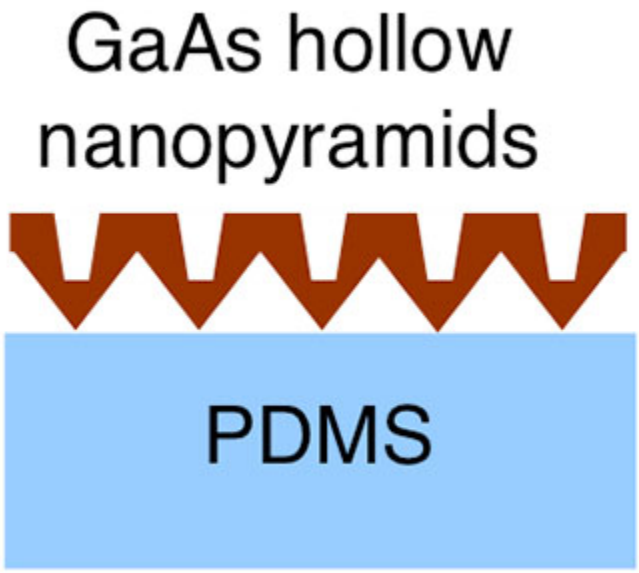
**Docket #:** S12-243

# Ultra thin film nanostructured solar cell

These light trapping solar cell structures increase optical absorption and carrier collection, improving efficiency by 24%, while significantly reducing the solar cell active layer thickness and thus lowering cost. Conventional solar cell thickness is a balancing act between increased optical absorption (thick layers) and increased carrier density (thin layers). The solar cell nano-structures developed by Stanford achieves high light absorption in a thin structure - providing **optical and electrical confinement** in the active region.




Example of GaAs solar cell (active region) on Polydimethylsiloxane substrate

## Applications

- Solar cells - single junction or multi junction

## Advantages

- High efficiency
- Reduced fabrication cost
- Versatile - Applicable to various types semiconductor solar cells made of various materials
- Flexible – may be compatible with flexible substrates

## Patents

- Published Application: 20140041717
- Published Application: WO2014026109
- Issued: 9,379,261 (USA)

## Innovators

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