由异种半导体材料贴合而成的高效率、低成本太阳能电池
High-efficiency and low-cost solar cells fabricated by bonding dissimilar semiconductor materials

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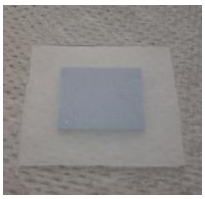
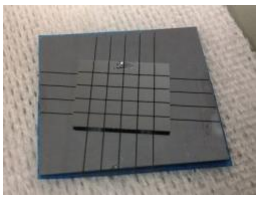
【手段：常温异种材料接合 (Method: Low-temperature bonding at RT)】

- 在真空槽中使试料表面活性化。
- 不使用中间层，进行常温接合。

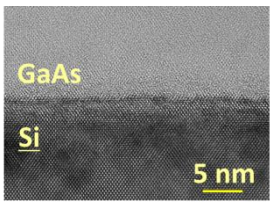
- Sample surfaces activated in a vacuum chamber. Bonded in room temperature.
- No intermediate layers used.

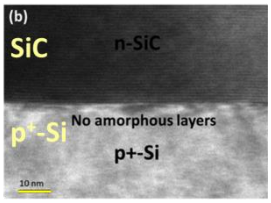


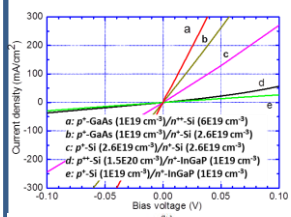


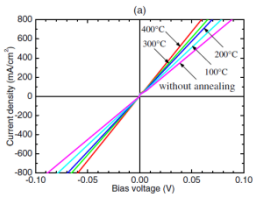
- Si/蓝宝石的接合制作。无间隙。
- Si/Si接合的制作。即使切割也无剥离。
- 实际证明了有充分的强度。

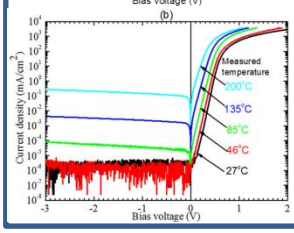
- No gap in Si/sapphire bonding interfaces.
- No chippings in Si/Si junctions after dicing.
- Enough bonding strength confirmed.











- 对Si/GaAs、Si/SiC界面热处理。无缺陷和空隙。
- 通过高浓度参杂和热处理，降低了Si/GaAs界面的电阻⇒应用于串联式太阳能电池。
- 良好的Si/SiC pn半导体特性⇒有应用于电源装置中的可能性
- GaAs/GaN、Si/GaN、GaAs/SiC接合制作。

- No dislocations or voids in annealed Si/GaAs, Si/SiC interfaces.
- Resistance across Si/GaAs interfaces lowered by larger doping concentrations and higher-temp. annealing. Applied in tandem cell fabrication.
- Excellent I-V characteristics in Si/SiC pn diodes. Potentially applicable for power devices.
- GaAs/GaN, Si/GaN, GaAs/SiC junctions formed.

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