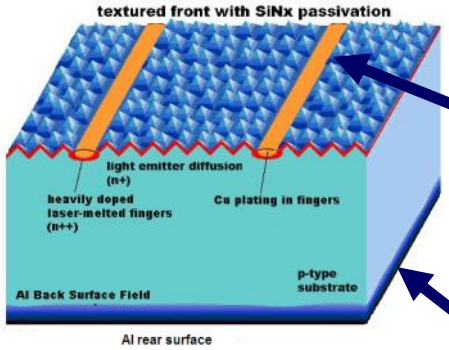
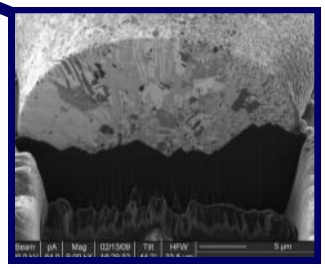
LDSE

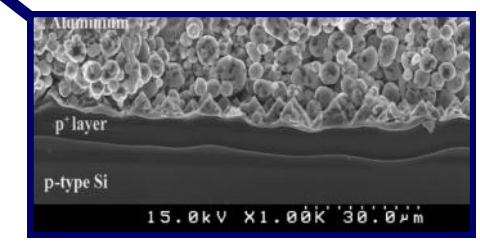
Laser Doping Selective Emitter

(98_0453)





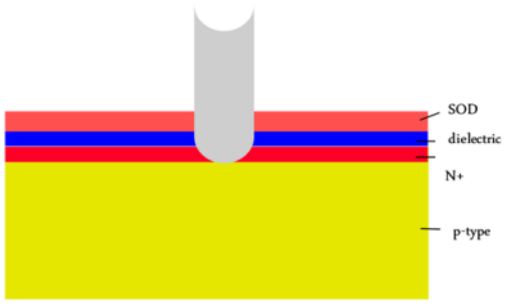
Conformed plating of laser doped regions



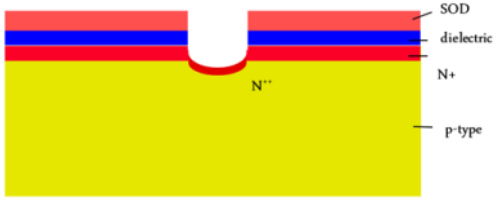
Aluminium rear surfacing

- **Pioneered by UNSW in the mid 1990s**
- **Creates high efficiency solar cells**
- **19% + on mono**
- **17% + on multi**
- **In 2010 > 20%**
- **Uses commercial grade silicon wafers**
- **Lower production costs**

1. Add layer of phosphorus



2.Laser selectively removes dielectric and melts the silicon underneath



3.Simultaneously incorporate dopants into melted region, creating heavily doped region

Choices of add-on technology

Improved Laser Operation (08_2291)	**Damage reduced to silicon wafer**	**Enhances the quality of the laser doping process**
Anti-Reflection Coatings (08_2281)	**Enhances surface & grain boundary passivation & minimises defect generation during laser doping**	**Higher efficiencies**
Plating (08_2283)	**Better performance with improved aspect ratios & reduced costs by using non-precious metals**	**Less shading, lower costs**
Improved Metal Adhesion (08_2290)	**Metal better adheres to the surface of the solar cell**	**Increases durability**
Bifacial LDSE (rear contact)	**Applying LDSE to front and back surface**	**Light capture on both sides of the solar cell**

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