**Laser induced crystallization of a-Si(Al) films using Ni absorption layer**

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**Formation of samples**

Films of 3 μm thick silicon-aluminum alloy were deposited to the glass substrates by simultaneous magnetron sputtering of silicon and aluminium targets. Si magnetron source was operated with the constant power (500 W) while the power of Al magnetron source was varied. Three samples were deposited with Al source power of 0 W (pure Si), 30 W and 42 W. Then a nickel absorption layer was applied to the substrate with Si(Al) film by the magnetron sputtering also. After that, the sample was treated with laser radiation with a wavelength of 1064 nm. Ni layer was almost ablated while Si(Al) film was transformed to polycrystalline state.

**Surface morphology (SEM)**

Pure Si, Al 30 W, Al 42 W

**Photoluminescence spectra**

Al is distributed nearly uniform through the film depth

**Resistivity**

Resistivity of Si(Al) films decreases with the growing of Al content

**Conclusions**

- All samples were crystallized after laser treatment (Raman peak near 520 cm⁻¹) and have complex surface morphology (SEM)
- Samples exhibit photoluminescence near 780 nm that confirms their nanocrystalline nature
- Al is distributed nearly uniform through the film depth
- Resistivity of Si(Al) films decreases with the growing of Al content

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