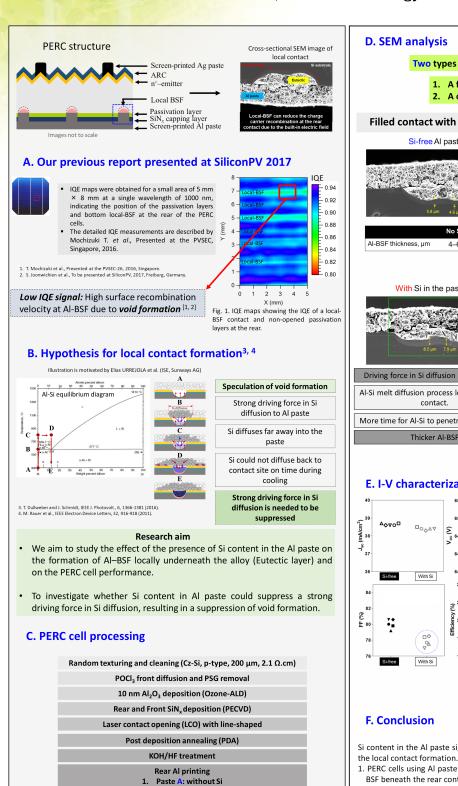




## Effect of Si content in Al paste on local Al rear contacts in PERC cell

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2. Paste B: with Si

Front Ag printing

## D. SEM analysis Two types of local contacts were observed. 1. A filled contact with Al-BSF 2. A complete void with Al-BSF Filled contact with Al-BSF Complete void with Al-BSF Si-free Al paste Si-free Al paste reduces! from 25% to 5% With Si in the paste With Si in the paste Driving force in Si diffusion is suppressed. contact. More time for Al-Si to penetrate into Si bulk Thicker Al-BSF E. I-V characterization Δ7 - C With Si F. Conclusion

Si content in the Al paste significantly impacted the I-V parameters of the PERC cells and

1. PERC cells using Al paste with Si showed an increase in  $V_{oc}$ , partly due to a thicker Al–

2. Voids with an Al-BSF were observed, with Al-BSF thicknesses comparable to those of

3. By adding Si into the paste, suppression of the driving force in Si diffusion can help to reduce the void formation, and to enhance the performance of PERC cells. 4. Optimization for Al rear printing is highly recommended when Al paste containing Si

BSF beneath the rear contacts.

deep filled contacts.

content is used.