



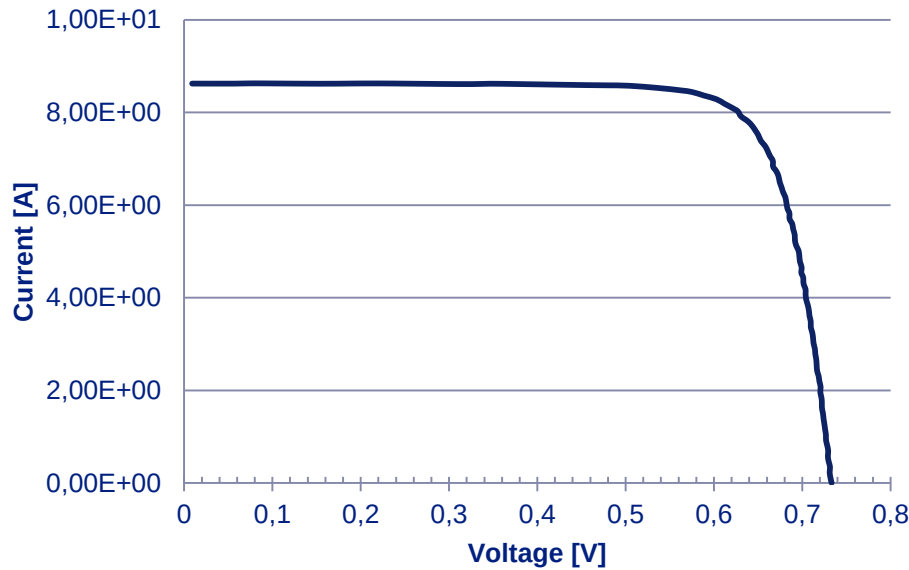
Si Heteroeklem Güneş Hücreleri

AYŞE SEYHAN

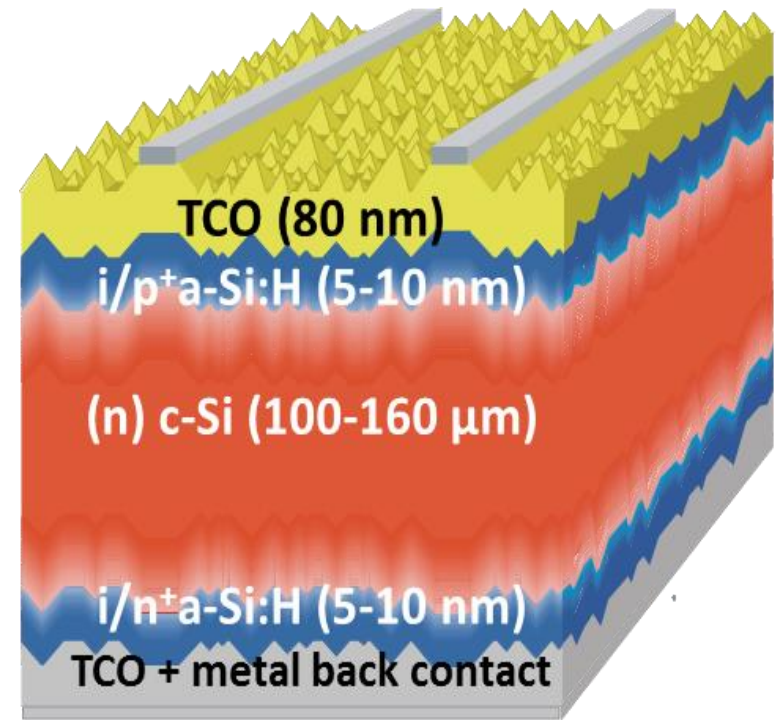
Niğde Ömer Halisdemir
Üniversitesi Nanoteknoloji
Uygulama ve Araştırma Merkezi

SOLARTR 2018

Si HIT solar cell structure at NÖHÜNAM

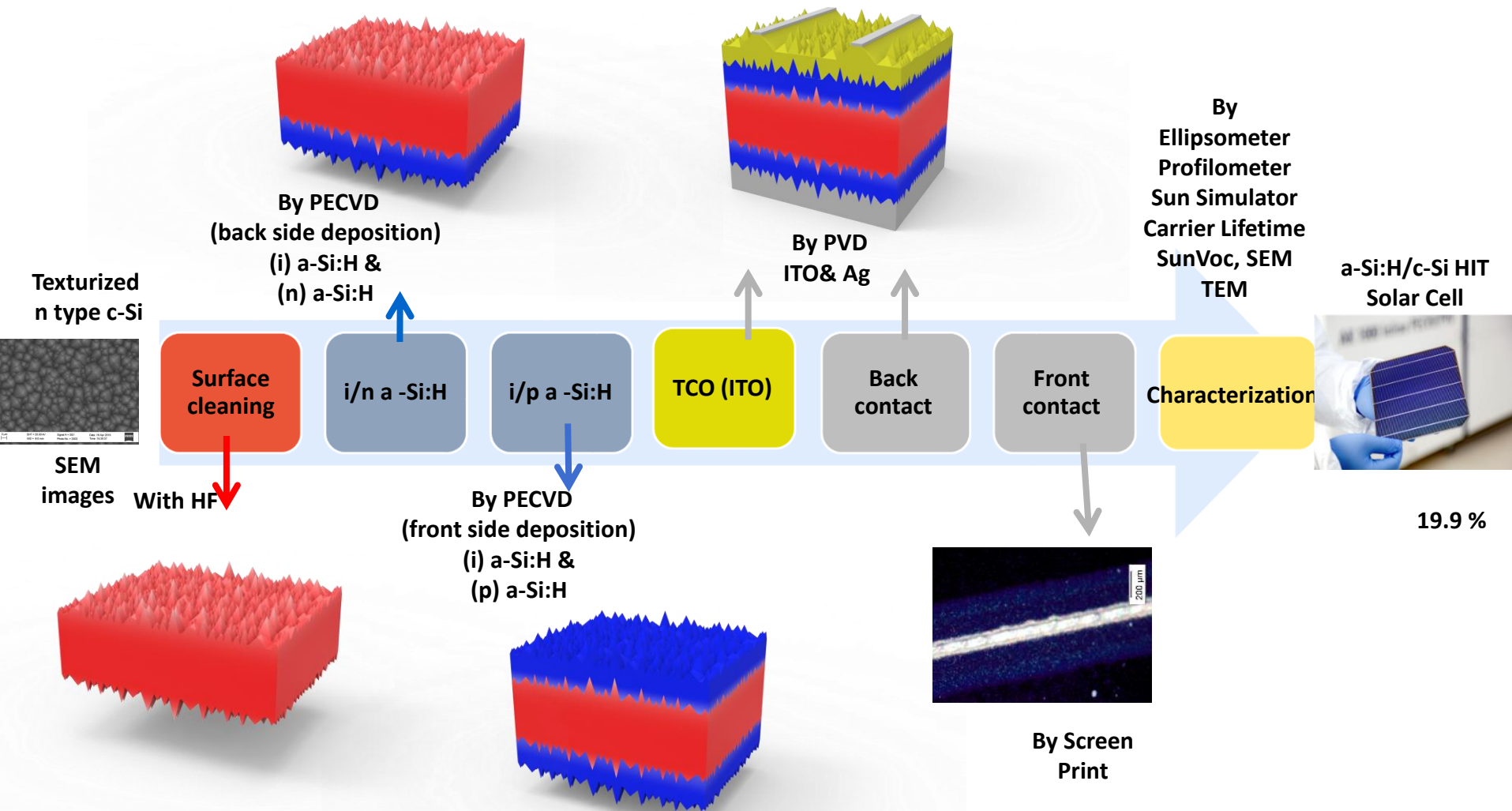


Efficiency: 20.4 % best cell !
 19 % in average on 6" c-Si wafer.



Time	Cell	Texture	Area (cm ²)	Eff. (%)	V _{oc} (mV)	FF (%)	J _{sc} (mA/cm ²)
Feb 2017	Cz	pyramides	238.5	19.9	733	79.6	36.2

Si HIT Process Sequence



Niğde Ömer Halisdemir Üniversitesi Nanoteknoloji Uygulama ve Araştırma Merkezi



Maskesiz
litografi
Kloe-
Dilase



SEM-
Zeiss Evo 40PECVD & PVD
Güneş Simülatörü



Si-HIT



İpek Baskı



Güneş
Simülatörü



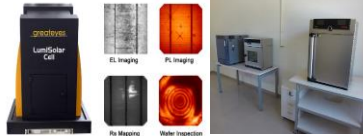
Taşıyıcı Ömrü



Elipsometre



Profilometre



EL&PL



Fırınlar



FTIR



XRD



RAMAN&AFM



Eldivenli Kabin
Organik Güneş
Hücre
Çalışmaları



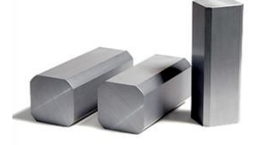
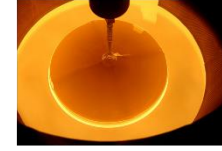
PVD
Nanoyapı
üretimi



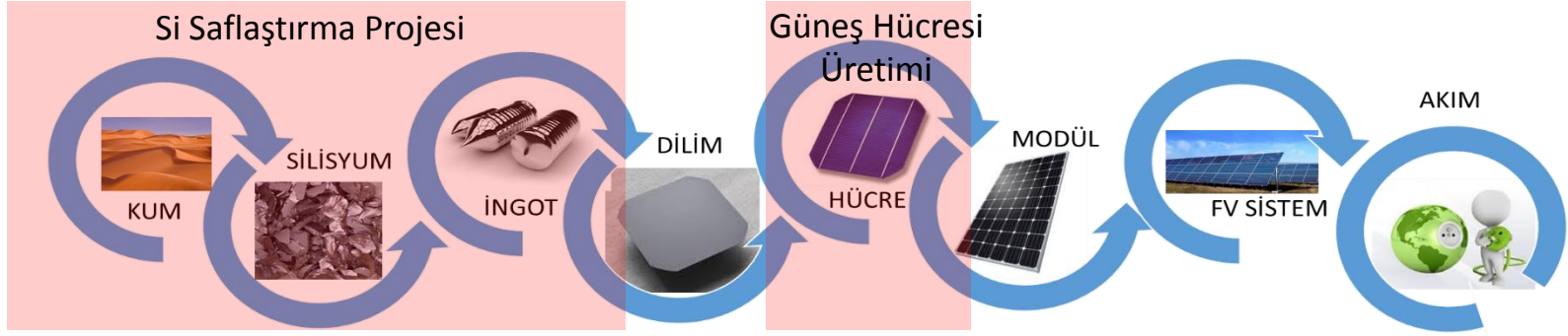
CVD
Grafen
Üretimi

Enerji ve Nanoteknoloji Anabilim Dalı

SİLİSYUM (Si) SAFLAŞTIRILMASINA YÖNELİK ARAŞTIRMA PROJESİ

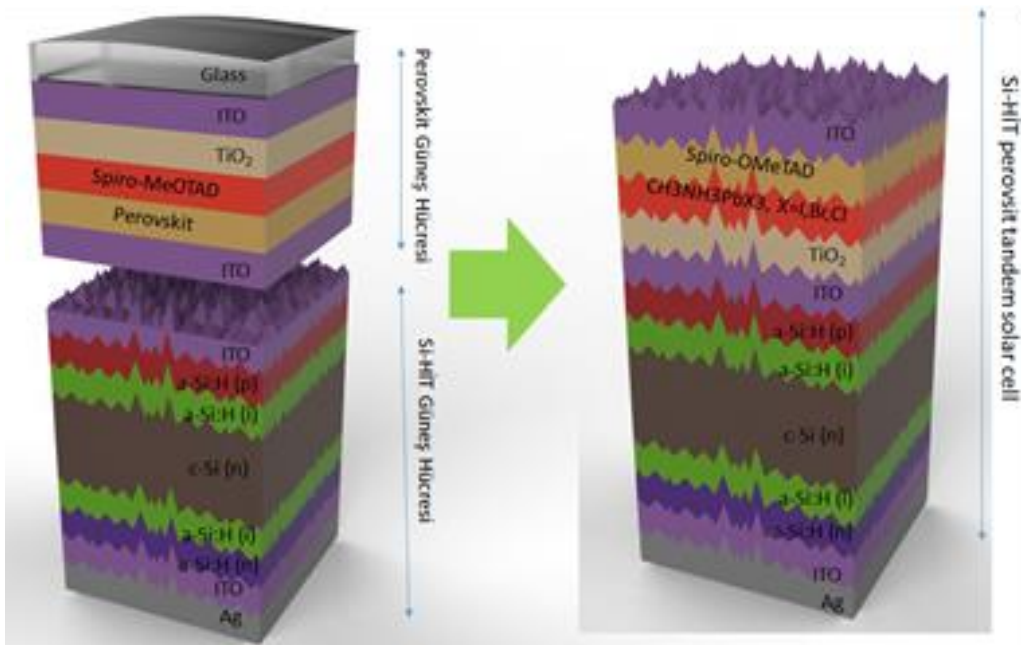


KUM'DAN İNGOT'A

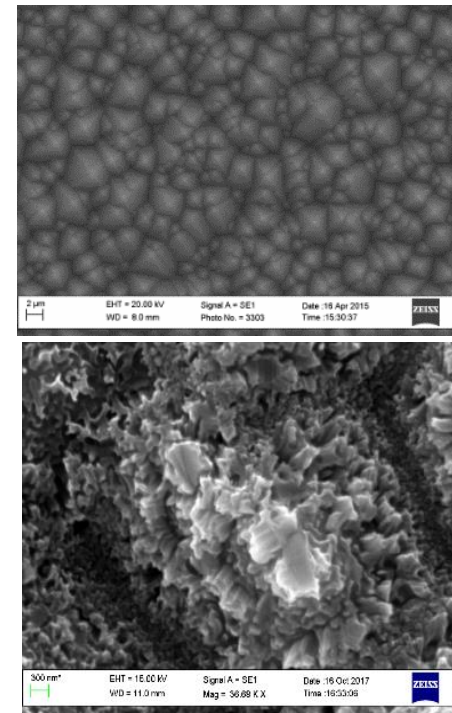


- KUMDAN BAŞLAYARAK İNGOT'A KADAR GÜNEŞ ENERJİ DEĞER ZİNCİRİ TEKNOLOJİLERİNİN **TAMAMININ** TÜRKİYE'DE **İLK OLARAK** GELİŞTİRİLECEK OLMASI
- Si DEĞER ZİNCİRİNDEKİ ARA ÜRÜNLERİN YAPI MALZEMELERİNDEN, OTOMOTİVE, MEDİKAL'DEN TEKİLİE BİR ÇOK ALANDA KULLANILMASI BÖYLECE YENİ ARAŞTIRMA KONULARININ VE SEKTÖRLERİNİN ORTAYA ÇIKMASI
- Si YATAKLARININ **İLK DEFA** BU KADAR DETAYLI ANALİZİNİN YAPILACAK OLMASI
- TÜRKİYE'DE IR YÖNTEMİ İLE Si YATAKLARININ BELİRLENMESİNİN **İLK DEFA** YAPILACAK OLMASI
- YATIRIMCILAR İÇİN EL KİTABI NİTELİĞİNDE KAYNAK OLUŞTURULMASI
- YETİŞMİŞ İNSAN GÜCÜ

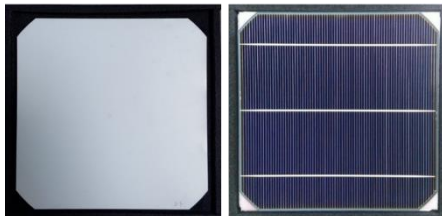
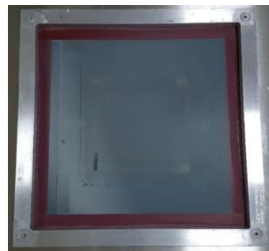
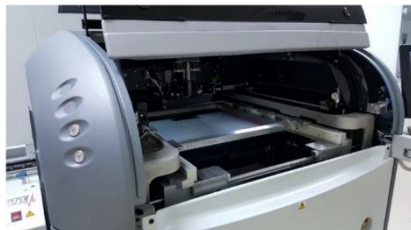
PEROVSKIT-HIT



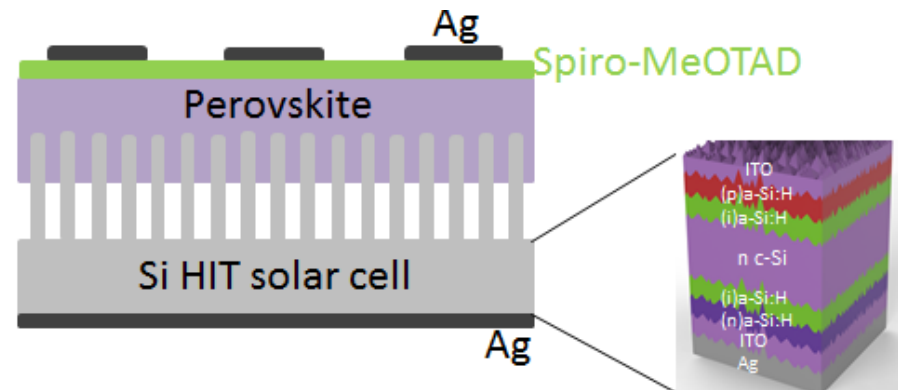
NANOTEXTURING



Metallization



Perovskite-Si HIT with Si NWs



The image is a composite. On the left, a portion of the Earth is visible from space, showing the Eastern Hemisphere with Africa, Europe, and Asia. The Earth's surface is in shades of brown and tan, with dark blue oceans. On the right, a bright sun is shown with a white core and a yellow-orange glow, emitting several sharp, dark rays that fan out across the dark background of space.

Thank You.
Teşekkür ederim.

İletişim

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The logo for SOLARTR 2018. It features the word "SOLARTR" in a bold, sans-serif font, with "SOLAR" in white and "TR" in orange. To the right of "SOLARTR" is the year "2018" in a large, bold, orange font. A small, stylized sun icon with rays is positioned between "SOLAR" and "TR".**SOLARTR 2018**