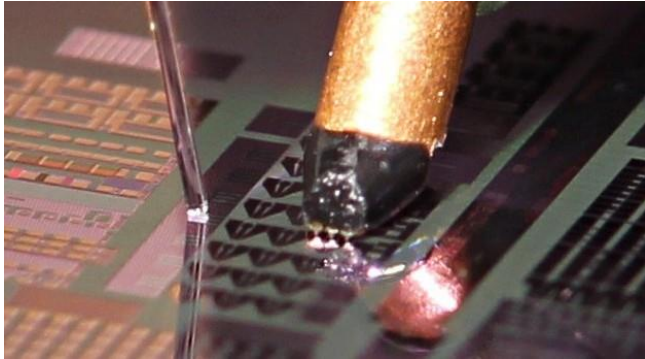
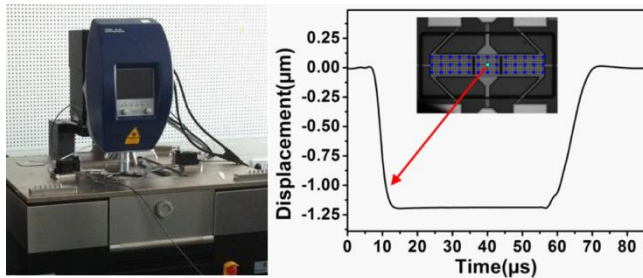


# Novel Wafer-Level Characterization Techniques

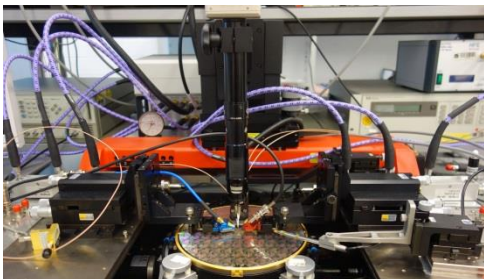
- Si Photonics
- Combined RF and optical test for Photonic BiCMOS



- Electromechanical RF-MEMS Characterization based on Laser-Doppler Vibrometry



- Active Load Pull Measurements up to 18 GHz



innovations  
for high  
performance  
microelectronics



Leibniz IHP

Innovations for High Performance Microelectronics  
Leibniz-Institut für innovative Mikroelektronik

## Address

Im Technologiepark 25  
15236 Frankfurt (Oder)  
Website: [www.ihp-microelectronics.com](http://www.ihp-microelectronics.com)

## Contact

Dr. René Scholz (MPW & Service)  
Email: [scholz@ihp-microelectronics.com](mailto:scholz@ihp-microelectronics.com)  
Phone: +49 335 5625 647  
Fax: +49 335 5625 327

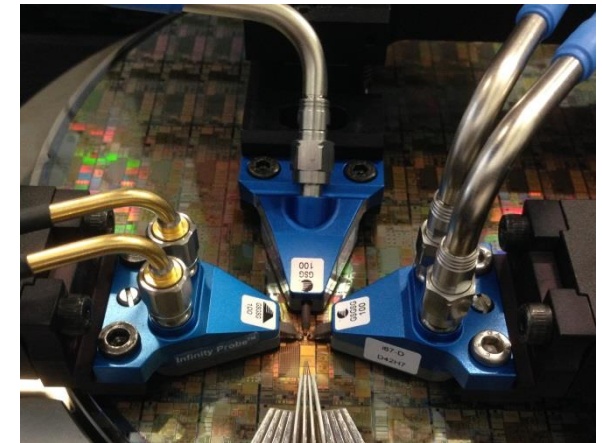
▲ 02/2019



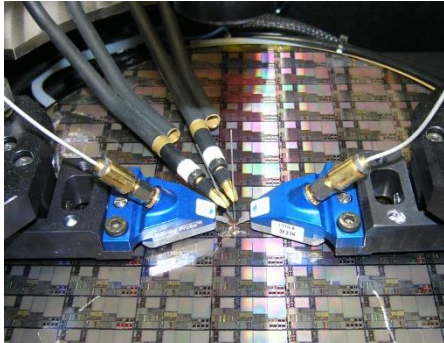
Mitglied der  
*Leibniz*  
Leibniz-Gemeinschaft

# IHP's On-Wafer Measurement Service

Get support for your challenging  
DC and RF measurement tasks



## Device Measurements



### Measurement Capabilities

- DC down to 1fA current resolution
- True Kelvin measurements (force/sense)
- 48 channel low leakage switch matrix
- C(V) from 20Hz to 1MHz
- TLP ESD characterization up to 7kV HBM equivalent
- Impedance up to 3GHz
- S-Parameters up to 170GHz (500GHz on request)
- 4Port S-Parameters up to 120GHz
- X-Parameters up to 50GHz
- Spectrum analysis
- Low frequency noise 0.1 Hz to 10 MHz
- High frequency noise from 2GHz to 26GHz
- Wafer size: all sizes  $\leq$  300mm
- Semi-automatic mapping
- Temperature range: -60°C to +300°C (for S-Parameters the temperature range is limited)

### Standard pad configuration

- Standard pad configuration for S-Parameters: 100 $\mu$ m GSG

## Functional Test Equipment



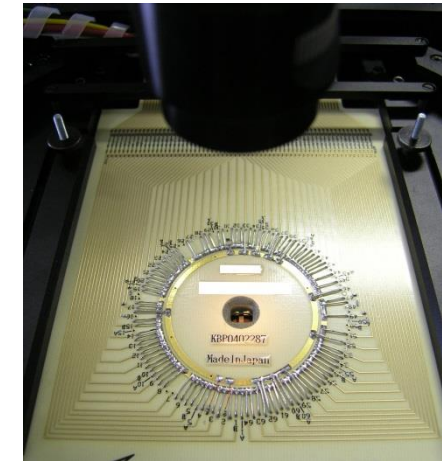
### Features of IHP's VLSI Test Equipment

- V93000 SoC High-performance cycle-based production tester
- Tester-per-pin architecture
- Device power supplies:
  - 12 channels:  $\pm$ 8V, max. 16A
  - 32 channels: 0-7V, max. 48A @3V
- Up to 320 digital channels
  - 256 channels with up to 1.6Gb/s
  - 64 channels with up to 8Gb/s
- Analog resources
  - 4 waveform generators, max 200MHz @50Ms/s
  - 4 digitizers, max 16bit @300MHz
- Fully automatic wafer prober
- Wafer size: 125mm, 150mm, 200mm
- Temperature range: -40°C to +150°C
- Loader for cassettes with up to 25 wafers

## Circuit Measurements

### Measurement Capabilities

- Analog mixed signal
- Analog RF signal



### Test Systems

- NI PXI test systems
- Tests at elevated temperatures
- Customized test programs
- Automated mapping

### Supported probe cards

- Cantilever probe cards
- Vertical probe cards with high pin count for flip chip designs
- Customized load boards

### Result format

- Electronic maps
- Inked wafers