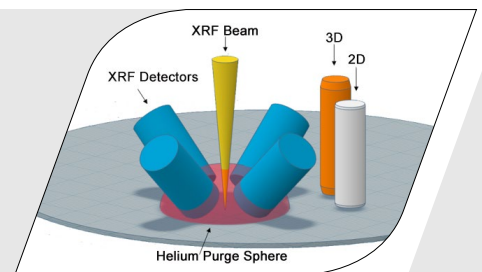


Copper Pillar Bumps Layers Thickness

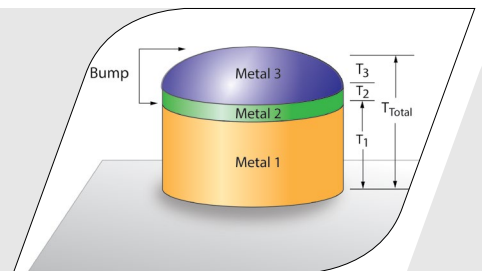
5 SECONDS SHOT FOR FULL FEATURE PARAMETERS

- ✓ Using the hybrid system solution provides full feature parameters in **one shot**.
- ✓ Film stack monitored in one shot with extraordinary fast throughput of **5 sec per site**



THE MULTI-STACK APPLICATION FOR BUMPS

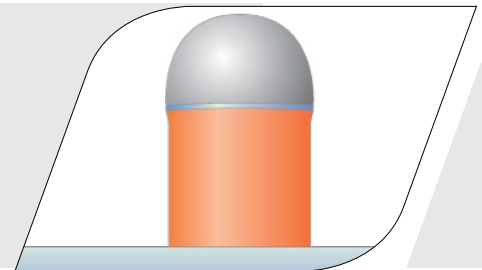
- ✓ Application for metals concentrations and composition, feature critical geometry dimensions, height and width presenting feature total and accurate 3D imaging.
- ✓ Providing immediate measurements of layers thickness **Ni (Nickel)**, **Sn (Tin)** including **Cu (Copper)** having precision performance of less than 1% for all layer thickness'.



ACCURATE AND REPEATABLE RESULTS

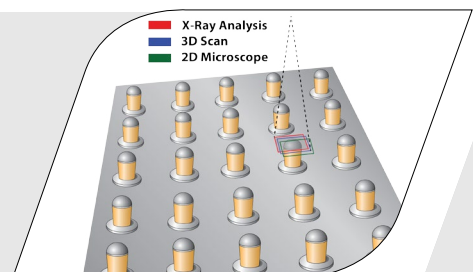
The hybrid solution (XRF/3D/2D) enables accurate layer thickness' results -

- ✓ **Not affected by the Cu TSV under the pillar.**
- ✓ Accurate and precise results compared to cross section measurements.



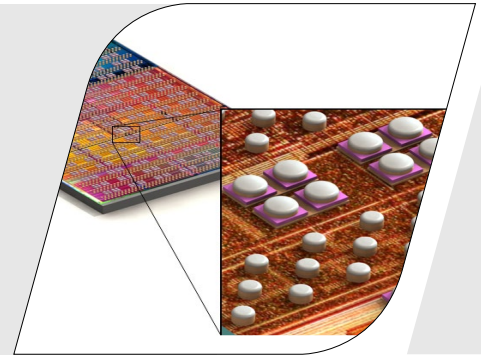
CALCULATING CROSS WAFER VARIATION

- ✓ Total height of all the sites in the wafers can be measured by a 3D scanner detecting height differences between wafers and calculating cross wafer variation



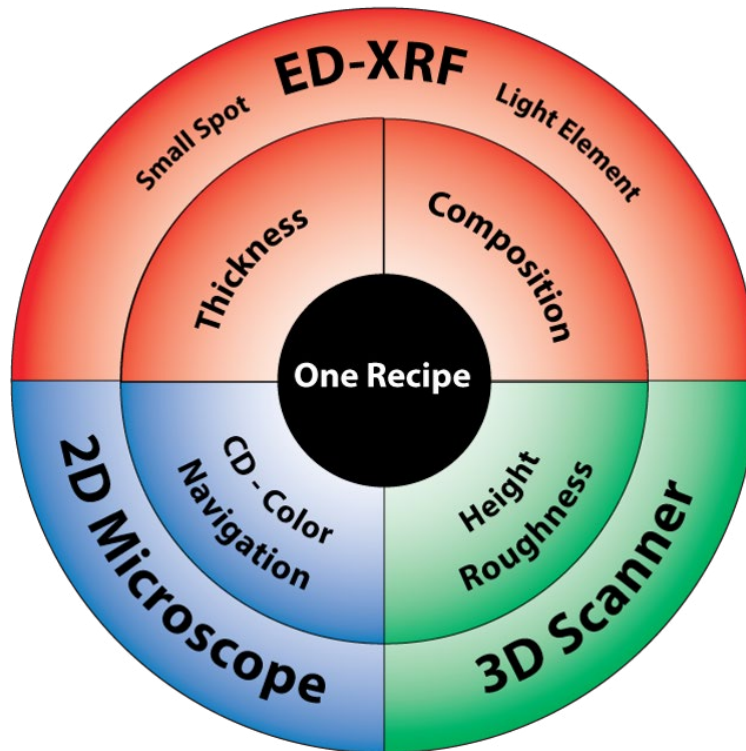
PILLAR BUMPS METROLOGY

- ✓ Onyx hybrid system provides comparison between active pillars and mechanical pillars or thermal pillars.
- ✓ Mechanical and active pillars can be metrologically measured with high precision for pillar height and CD, monitoring the finer pitch and the precise gap control while maintaining sufficient height for the mechanical strength.
- ✓ Accurate measurement of pillar bumps allows removal of any redundant features.



THE METROLOGY SOLUTION - XWINSYS ONYX

- ✓ In-line non-destructive hybrid metrology system with ED-XRF analysis and optical components of 2D microscope for precise mapping & 3D scanner for accurate height.
- ✓ A metrology system dedicated for the semiconductor FEOL and BEOL thin films and ultra-thin films multi-layers thickness measurements
- ✓ System is equipped with fully automated 300/200/150 mm (HVM) magazine robot providing hands-free wafer handling operation. (EFEM, SEMI E84, EHT, SECS/GEM)



XwinSys
Technology Development Ltd.

Email: info@xwinsys.com www.xwinsys.com Tel: +972-4-9891313 Fax: +972-4-9891323
Ramat Gabriel Industrial Zone, 6 Hatikshoret St., Migdal Haemek 2310901, Israel

