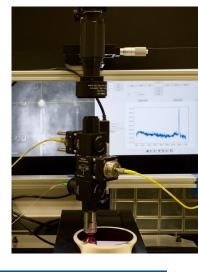


Start Up Opportunity

PIXCAN Silicon Device Critical Dimension Measurement



THE PROBLEM

Silicon device testing in the nm range is subjective, prohibitively slow and cannot meet high-volume manufacturing requirements for device defect inspection.

The current state of the art CD-SEM test equipment is struggling to meet device inspection throughputs and the measurement requirements associated with the shift to more complex patterns and smaller devices in the sub 5nm range.

SOLUTION / OPPORTUNITY

MTU has developed PIXCAN, a test platform for critical dimension measurement of Silicon devices. PIXCAN has the following advantages when compared to current systems:

- Results are not subjective
- Faster characterisation method
- High throughput wafer sale testing
- Capable of detecting defects <5nm
- Smaller physical footprint

PIXCAN is based on the Resonant Scattering Spectroscopy (RSS) technique which enables the realisation of automated, non-invasive, and high throughput device characterisation at wafer scale. RSS allows a complete characterisation of the modes of a defect state in a silicon device.

OTHER APPLICATIONS

Non-invasive system to test the individual components of an optical circuit at wafer scale.

VALUE PROPOSITION

Process Engineers in Silicon-based Foundries will use the PIXCAN test platform for faster, higher-throughput, less subjective and more cost efficient process monitoring.

STAGE OF DEVELOPMENT

The CAPPA www.cappa.ie research group has already developed a functioning prototype to a Technology Readiness Level of 4. The project was funded through an Enterprise Ireland Commercialisation Fund project to develop the technology. The team plan on completing a follow on project to develop a prototype test platform which can be used onsite in a Silicon foundry. The system is expected to reach TRL7 (prototype demonstration in operational environment) in 2023.

IP STATUS

A PCT patent was filed in December 2022. The patent will be published in mid 2023.

MTU is seeking a commercial lead with the necessary contacts, network, experience and skills to become involved in an R&D project to spin out and lead a company focused on commercialising this technology.

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