

Material Characterization

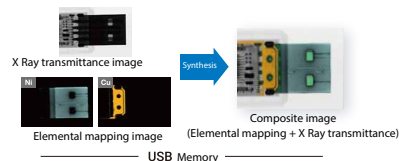
Metrology

Foreign Materials

Foreign Particles

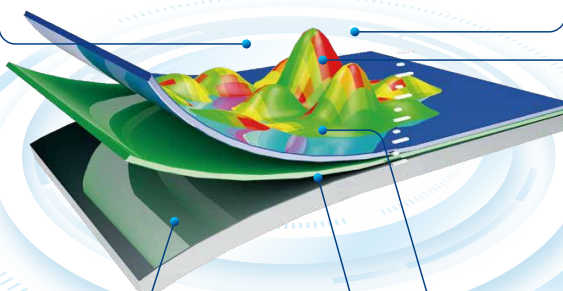
Micro X-Ray analyzer **XGT-9000 Expert**

- Light element analysis from B (Boron)
- Transmittance X-ray for visualizing inside components
- Film thickness analysis of metal thin film



Analytical technology

- ▶ Spectroscopic ellipsometry
- ▶ Raman spectroscopy
- ▶ Photoluminescence
- ▶ Cathodoluminescence
- ▶ Glow discharge emission
- ▶ X-ray Fluorescence

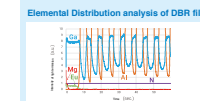


Depth Profile

Depth Direction

Glow Discharge Optical Emission Spectrometry **GD-Profiler2**

- Rapid depth direction element analysis
- No ultra high vacuum required
- A rapid elemental analysis of depth from H(Hydrogen) to U(Uranium)



Sample provided by Osaka University graduate school of Engineering, Total production science, Fujitsu Yasuhiko Laboratory

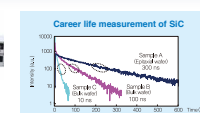
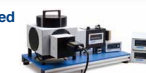
Career Lifetime

Career Life

Carrier life time evaluation by time resolved PL analysis

DeltaFlex

- Carrier life time evaluation by time resolved PL
- A wide range of wavelength for light source
- Time resolved PL analysis from picoseconds to a few seconds



Film Thickness / Bandgap

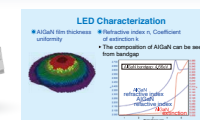
Film Composition

Band Gap

Spectroscopic ellipsometer

UVISEL Plus

- Analysis of film thickness, refractive index, and extinction coefficient of ultra thin film
- In Situ measurement



Stress

Befitting

Defects / Impurities

Crystal Defects

Micro Raman Spectroscopy **LabRAM HR Evolution**

- The highest stress resolution
- Mapping measurement can be done up to 12 inch wafers
- Cryostat available



Stress uniformity data based upon 40 point mapping measurement

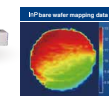
AFM Raman integration **LabRAM HR Evolution Nano**

- One AFM and one Raman
- nm order first spatial resolution
- No sample movement required



Photoluminescence measurement system **SMS**

- Upgrade microscope to Spectroscopic microscope system!
- Raman, PL and Time resolved PL measurement capabilities
- Mapping measurement available



Cathodoluminescence measuring system **HORIBA CLUE Series**

- Integrated to a window port of SEM
- Coupling with Raman analysis
- Upgradable for a wide area measurement

