

Advanced Metrologies and In-Depth Interpretation



Materials Analysis



Why Work with Us?



Affordable Price

Up to 40% lower than industry pricing



Free Consultation

Before and after service



In-Depth Data Interpretation

As a second opinion to yours



Quality Assurance Program

Free remeasurement if not satisfied

Advanced Applications



Objective

Identify defect type & density

Map dopant type & distribution

Detect surface (< 3 nm) chemical bonds

Image individual atoms



Solution

PALS

SCM/SSRM

Nano-FTIR

Cs-TEM

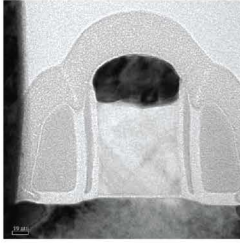
Metrology Services

Microscopy	Visualization from macroscopic to atomic level: 3D-CT, AFM, C-SAM, Dual Beam FIB/SEM, SQUID, SEM, SCM, SSRM, TEM, Cs-TEM
Scattering	Analysis of material structure and composition: DBS, PALS, RBS, HFS, NRA, ToF SIMS, XRR, XRD, XRF
Chemical Analysis	Identification of elements and chemical bonding states: d-AES, d-XPS, ICP, NMR, MALDI ToF, EDS, EELS
Spectroscopy	Characterization of materials based on their interaction with light: Fluorescence, FTIR, Nano-FTIR, Raman, UV-VIS
Chromatography	Analysis of composition including trace impurities in liquids and gases: GC-MS, TGA-GC-MS, IC-MS, HPLC-MS, UPLC
Thermal & Mechanical	Qualification of physical properties of materials: Porosimetry, TMA, DSC, TGA, Nano-indentor, Nano particle tracking

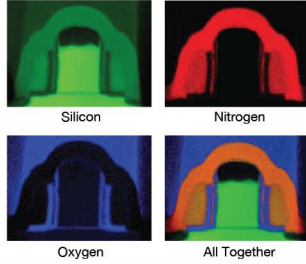


High Resolution (HR) TEM/EELS

Image of Gate Oxide

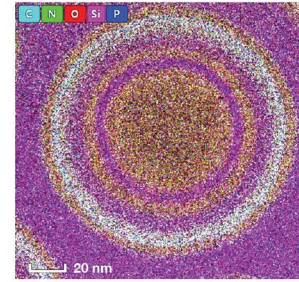
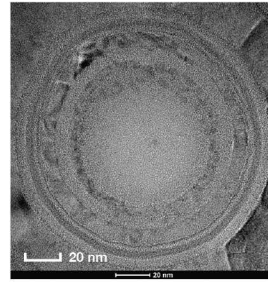


EELS Aerial Mapping



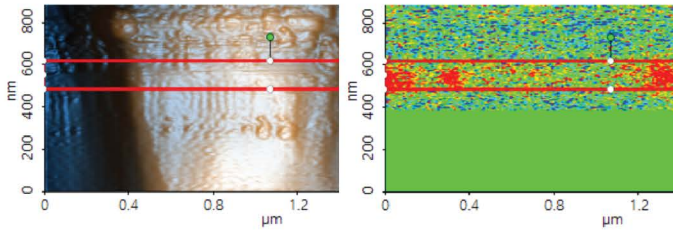
Structure and Compositional Analysis of Gate Structure

Aberration (Cs)-Corrected TEM/EDS



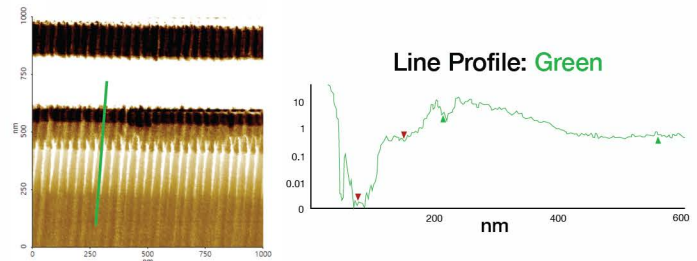
Plan View TEM and EDS from a 3D NAND Chip

Scanning Capacitance Microscope (SCM)



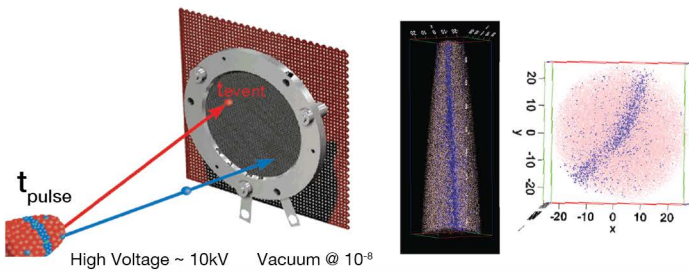
Dopant Type Identification in a 15 nm NAND Contact Gate

Scanning Spreading Resistance Microscope (SSRM)



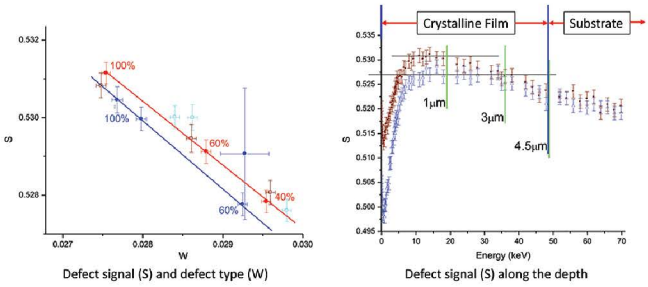
Dopant Profile from a 15 nm Memory Array

Atomic Probe Tomography (APT)



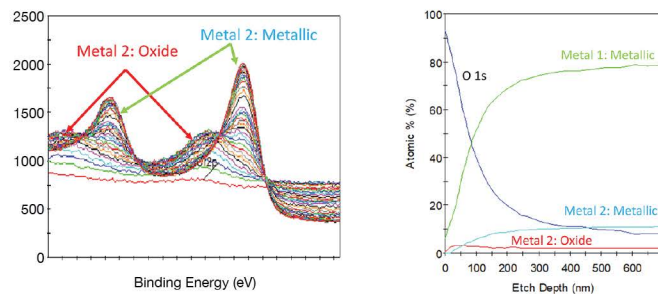
Boron Doping Concentration - 0.024%

Positron Annihilation Lifetime Spectroscopy (PALS)



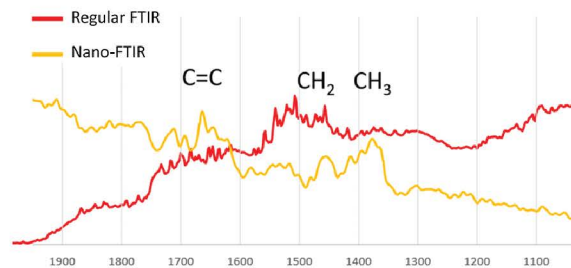
Defect Type, Density, and Distribution within a Single Crystal Film

X-ray Photoelectron Spectroscopy (XPS)



Metal Peak Deconvolution with Depth Profiling

Nano-Fourier Transform Infrared (Nano-FTIR)



Comparison of Nano-FTIR and FTIR Spectra from a Treated Surface