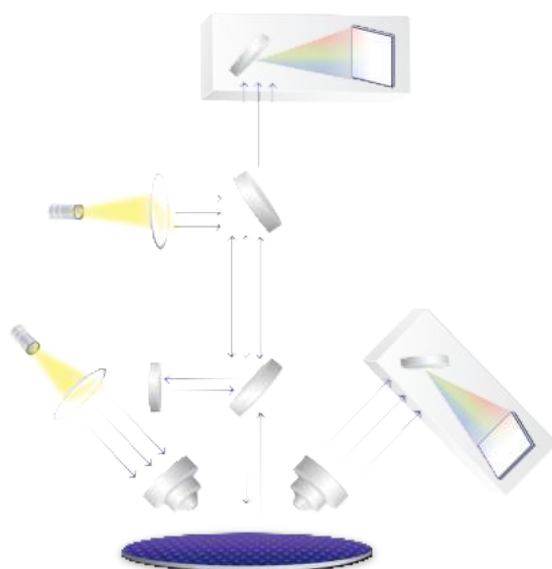


NOVA PRISM

A New Dimension in Optical CD

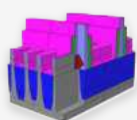
INNOVATION FOR ADVANCED PROCESS INSIGHT

Introducing Nova's new optical CD platform employing disruptive Spectral Interferometry (SI) technology and enabling extraction of unique information from the measured sample, inaccessible by current technologies. Nova PRISM offers unique optical channels that can address many of the growing challenges in the current fabrication processes. Nova PRISM provides invaluable metrology performance that enables the delivery of the most advanced technologies at highest yield and quality.



PRISM APPLICATIONS DOMAIN

Logic



Enhanced profile information

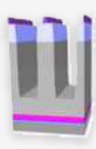


Bottom Etch Parameters

DRAM

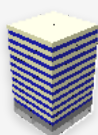


Ultra low reflectance



High reflectance

3D NAND



Decoupling thickness and material properties



HAR structures

ADVANTAGES OF SPECTRAL INTERFEROMETRY

- Synergy of hardware and algorithms
- Essential information inaccessible by current solutions
- High-end metrology enabling sensitivity to weak parameters and unique decorrelation capabilities
- Enhanced correlation to device yield on critical steps

NOVA MMSR

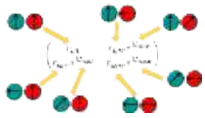
Optimized for the Most Complex
3D Applications



SUPERIOR PERFORMANCE

The Nova MMSR (Multi Measurement Spectral Interferometry), is a high-end stand-alone metrology system, optimized for the most complex 3D applications. Wide spectral information coupled with automatic channel selection and disruptive modeling solutions provide a superior product offering.

The MMSR system utilizes Nova multi measurement spectral interferometry technology and Nova MARSTM software to measure 3D complex logic and memory applications.



Full polarimetry
All information content



Full coverage
OCD Etch PTOR Films
FEOL & BEOL



Discrete measurements acquisition
HW level parameters decorrelation

HIGHLIGHTS

- Designed for complex 3D structures: FinFET, Nanosheet, 3D NAND, and DRAM
- Full polarimetry information
- Automatic channel selection for optimized solution
- Full backward compatibility and field upgrade options



Optimizing Cost of Ownership
ACS engine - Increasing TPT
w/o compromising performance



ML Industry leader
TTS optimization (Days->Hours)
In line reference alternative E-test
prediction



Differentiated performance
Automatic channel selection for
optimized performance
Nova Swift enabler

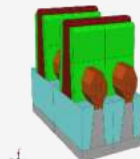
MMSR APPLICATIONS DOMAIN



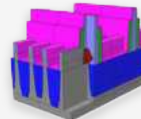
BE Etch
Accurate Profile
Monitoring



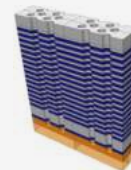
DRAM



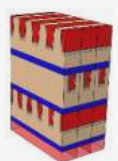
FE Etch
FinFET



TF
>50A



3D NAND



CMP
Complex apps
with IM

NOVA i570[®] HP

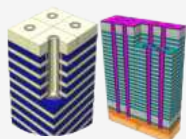
Highest Performance IM Solution

FASTEST TOOL IN THE MARKET

The Nova i570[®] HP is the leading member of the Nova i570[®] product Family. It is Nova's most advanced integrated metrology platform that provides the highest metrology performance, process control and productivity capabilities.

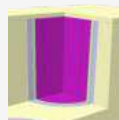
- Highest throughput in the market supporting the newest and fastest CMP polishers
- Superior within-wafer and within-die variation control
- Market-leading accuracy, precision, and tool-to-tool matching specification
- Full metrology compatibility with Nova i550[®] platform
- Integration with leading process tools

NOVA INTEGRATED METROLOGY APPLICATIONS DOMAIN

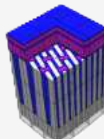


3DNAND

FE/BE CMP (OCD, In-Die)

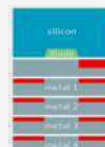


Residue detection



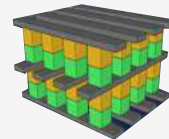
DRAM

FE/BE CMP

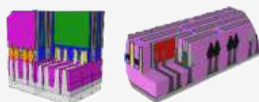


CIS

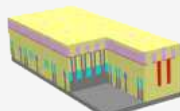
BSI CMP



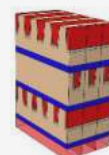
X-Point



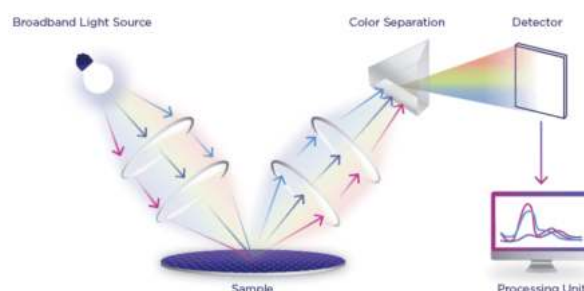
FE CMP (OCD/SRAM)



MOL CMP



BE CMP



ADVANTAGES OF OPTICAL SCATTEROMETRY

- High measurement speed due to strong light sources and sensitive detectors
- Nondestructive with no impact on the production line
- Interpretation of the scattered signal is much more accurate than with other metrology technologies

NOVA ASTERA™ PRIME

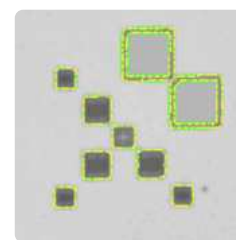
A First of its Kind in the Industry



SUPERIOR METROLOGY PERFORMANCE AND PRODUCTIVITY

Utilizing oblique and normal incidence channel measurements, Nova ASTERA™ Prime provides an unmatched level of accuracy, precision, tool-to-tool matching and extendibility.

- Uniquely suited to support R&D challenges in the most advanced nodes
- Best metrology performance
- Best IM solution for complex 3D structures
- Advanced algorithmic modeling suite providing the fastest application time-to-solution



ADVANCED IMAGING

Allows for greatly improved precision in characterizing elements of the image.

HYBRID METROLOGY

Leverages measurements from multiple equipment types or toolsets.

STAND-ALONE PERFORMANCE IN AN INTEGRATED METROLOGY FORM FACTOR

Unique Product Architecture

- New platform combining Normal Incidence and Oblique Channels
- New light source with improved SNR
- New stage for most accurate navigation

Best-in-Class Metrology Performance Enabled by Hardware

- Stand-alone level of accuracy
- Best sensitivity and parameter de-correlation
- Up to 30% repeatability and tool matching improvements
- Smallest pad size

Shortens R&D Time-to-Solution

- Accurate model-based solutions
- Fast adaptation to CIP changes (less than one day)
- Eliminates the need to measure on stand-alone devices
- Best IM solution for R&D, etch, and ultra thin-film applications