

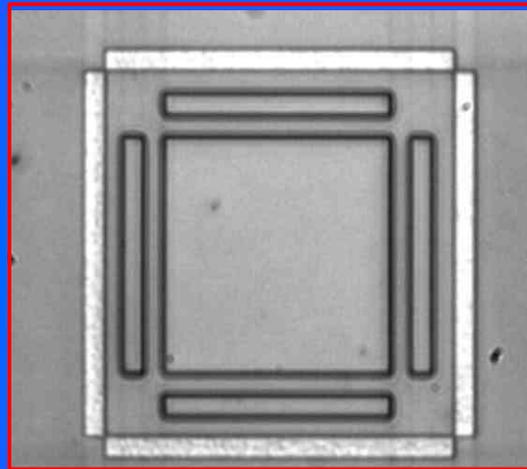
# Optical Overlay Metrology Research and Optical Overlay Metrology Standards Development Project Leader: Richard Silver

## FY 2000 Accomplishments

- Developed overlay target reticles and fabricated comprehensive prototype wafer standards at SEMATECH
- Developed and analyzed automatic focus algorithms including a new frequency-based method
- Used cross-correlation and recently developed edge detection methods to improve edge position repeatability and accuracy
- Used the SPECTEL Metrologia model to analyze the overlay data and significantly improved the analysis
- Designed and fabricated the microgrid for CCD calibration and optical system calibration.

## 2001 Deliverables

- Complete the design of new reticles for overlay metrology and have new wafers fabricated for overlay standards based on a comprehensive evaluation of the prototype set of overlay artifact test standards
- Complete the formal qualification process of the microscope optics and the x-y metrology, investigate the key issues in overlay metrology and develop comprehensive modeling capabilities for centerline and edge detection methods.



## Customers and Collaborators

- International SEMATECH, IBM, AMD, Intel, Motorola, KLA-Tencor, Schlumberger
- Office of Microelectronics Programs

