

# 193 Immersion Lithography with Water

SEMATECH Litho Forum

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# Water Based Immersion Litho

- Immersion ArF has made remarkable progress in last few years
- Challenges associated with extending 193i with water
  - Overlay & Defectivity
  - Materials Selection
  - Reflectivity Control
  - Mask Manufacturing Challenges, EMF Effects
  - Double Exposure Approaches
  - Advanced RETs, Complex OPC
  - High Index Solutions (see Will Conley)
  - Cost of Ownership
- Until another solution emerges, 193i with water is the technology to be beat for the 32 nm node

# Agenda

- Matt Colburn (IBM): High(er) NA & Multiple Exposure Processes
- Bill Arnold (ASML): ASML ArF Immersion Tool Development and Status
- Masaomi Kameyama (Nikon): ArF Immersion & Extension
- Akiyoshi Suzuki (Canon): Canon ArF Immersion Tooling Update
- Frank Schellenberg (Mentor Graphics): Managing RET Complexity Under Immersion
- Christophe Pierrat (AMTC & Toppan): Mask Fabrication Challenges