Accelerating the next technology revolution

2010 Resist TWG

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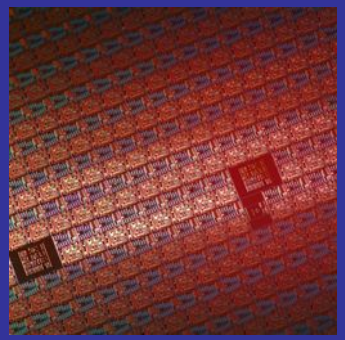


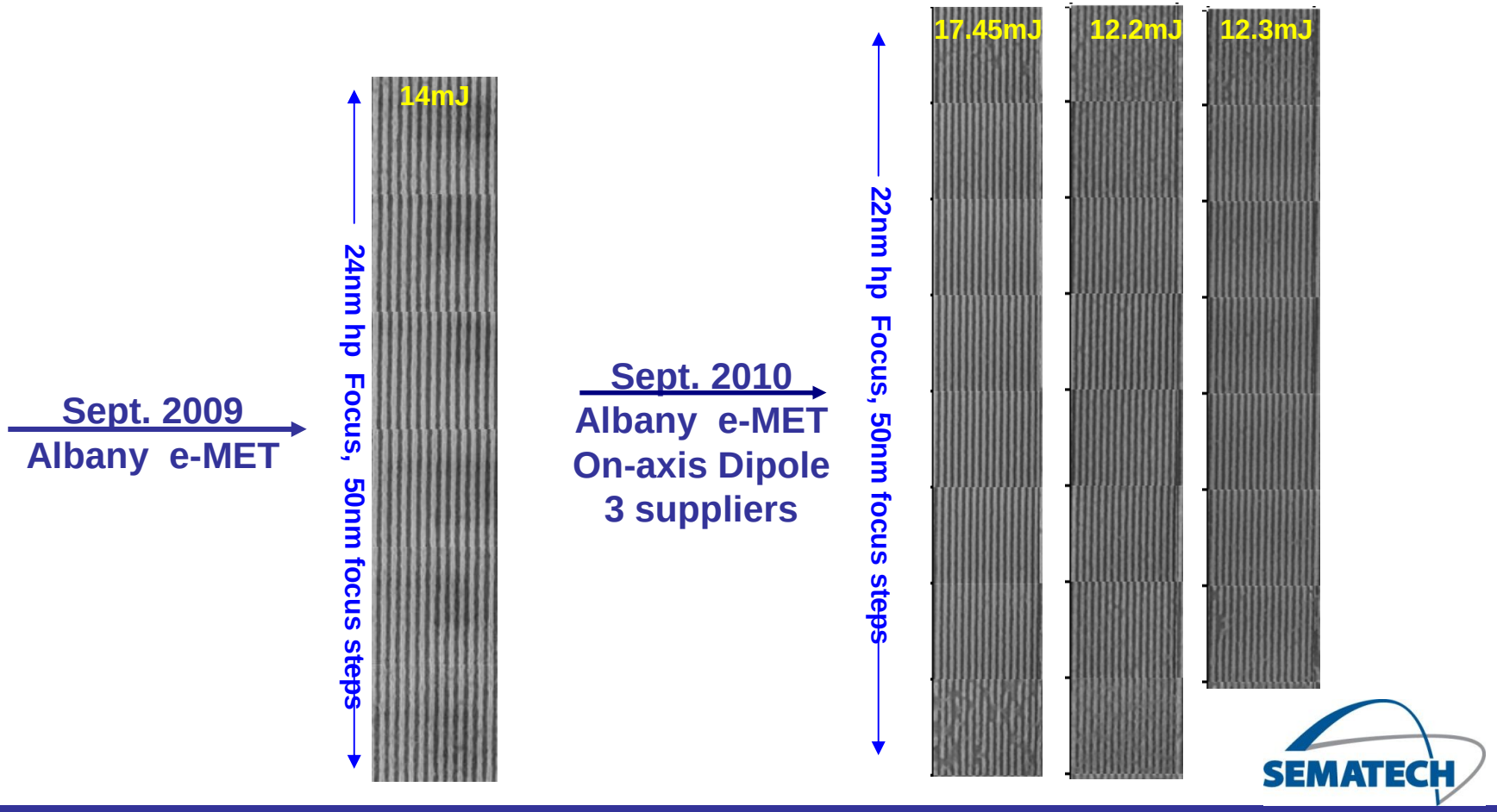
SEMATECH

Internet Access

- Wireless LAN
- ID: 2010kobe
- Password: euvle
- Please sign in

Resist TWG: Mission & Objective

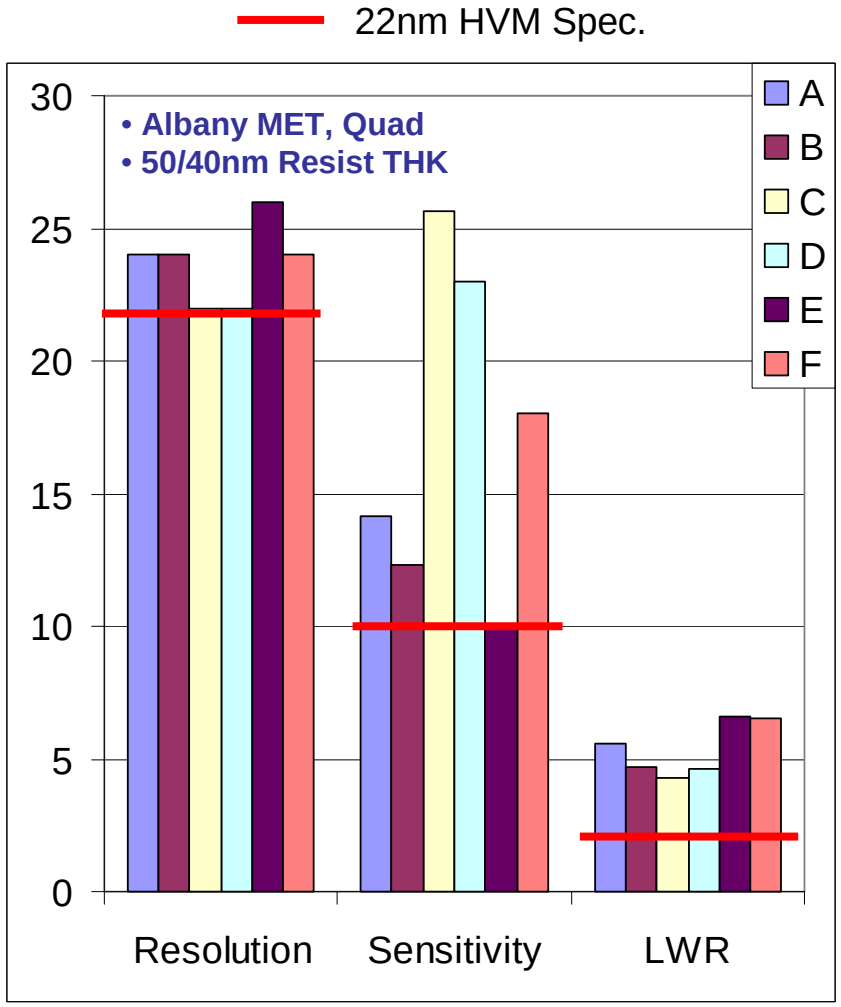
- **Mission: Increased cooperation among EUV resist development community world wide**
  - Coordinate efforts to identify & address top issues
- **Objective: Provide forum to share information to foster global collaboration to accelerate development of EUV resists**



Introduction

- Resolution and Sensitivity are improving
  - Several resist suppliers are now demonstrating **22-20nm hp** resolution with CAR on all EUV Micro Exposure Tools
- Pattern Collapse
  - Patter collapse is a dominant issue limiting resolution for most EUV material platforms
  - Rinse materials aimed at capillary force reduction are not sufficient to entirely eliminate collapse
  - Additional factors are known to affect collapse behavior: swelling and adhesion
  - Need more work towards a total collapse solution
- LWR improvement
  - Current materials are far from the LWR target
    - Many materials at ~4nm, target is <2nm
  - LWR improvement belongs to both litho and pattern transfer
    - Looking for an integrated solution to get to the target level
- Outgassing
  - Major issue limiting materials research and development
    - Test procedure is too expensive, time consuming, and not readily available to the litho community

Key Gap for 22nm Patterning



Goal **22nm HP 10mJ/cm^2 1.4nm**

- Key Gaps for 22nm HP Patterning

1. LWR
2. Collapse
3. Sensitivity
4. Resolution
5. Defect (Bridge/Scum)
6. Pattern transfer with thin resist

Agenda

- Approaches to address the EUV resist challenges of image collapse, LWR, sensitivity, and resolution
  - Seiichi Tagawa – Osaka University
  - Jim Thackeray – DOW
  - Toru Kimura – JSR
  - Shinji Tarutani – Fuji
  - Mark Neisser – AZ
- Tooling to measure EUV resist outgassing and witness plate contamination
  - Rupert Perrera – EUV Technology
  - Greg Denbeaux – CNSE
  - Noreen Harned - ASML