

IEUVI Optics Contamination and Lifetime Technical Working Group

**Chair:
Andrea Wüest, SEMATECH**

**Sapporo, Japan
November 1, 2007**

**Co-chairs:
Yasuaki Fukuda, EUVA/Canon
Tom Lucatorto, NIST
Bas Wolschrijn, TNO
Kevin Orvek, SEMATECH/Intel
Obert Wood, AMD**



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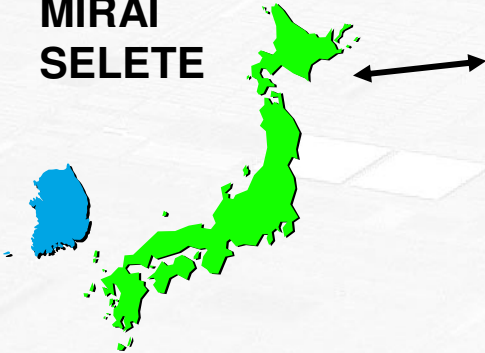
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International EUV Initiative (IEUVI)

Asia/Pacific

ASET
EUVA
MIRAI
SELETE



International EUV Initiative

Europe

MEDEA+
LETI
IMEC

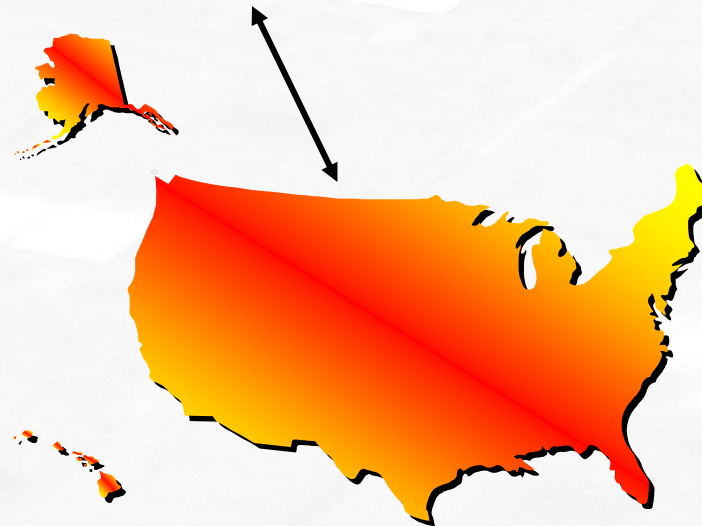


IEUVI

<http://www.ieuvi.org>

Chair: Paolo Gargini

- Regular coordination meetings
- Technical working groups
- Benchmarking data exchange



USA

SEMATECH
SRC
INVENT



An International Consortium Network

IEUVI Chairman:

Paolo Gargini (also chairman of ITRS):

- ❑ Regular coordination meetings
- ❑ Technical working groups
- ❑ Benchmarking data exchange

**IEUVI
International
EUV
Initiative**

IEUVI Technical Working Groups (TWG)

Mask TWG

Chair: Phil Seidel (US) SEMATECH
Co-Chairs: Iwao Nishiyama (JP) ASET
Jinho Ahn (KR) Hanyang Univ.
Jan Hendrik Peters (EU) AMTC
Phil Seidel (US) SEMATECH
Meeting
Organizer: Shinji Okazaki (JP) ASET

Optics Contamination TWG

Chair: Andrea Wüest (US) SEMATECH
Co-Chairs: Yasuaki Fukuda (JP) EUVA / Canon
Tom Lucatorto (US) NIST
Bas Wolschrijn (EU) TNO
Meeting
Organizer: Giang Dao (US) SEMATECH / Intel

Source TWG

Chair: Koichi Toyoda (JP) EUVA
Co-Chairs: Stefan Wurm (US) SEMATECH
Meeting
Organizer: Dieter Gotz (EU) MEDEA+
Masashi Ogawa (JP) EUVA
Facilitator: Vivek Bakshi (US) SEMATECH

Resist TWG

Chair: Kim Dean (US) SEMATECH
Meeting
Organizer: Serge Tedesco (EU) CEA / LETI



Meeting Agenda

8:00	Welcome and Introductions	A. Wüest, SEMATECH
8:10	Regional Updates	Y. Fukuda, EUVA/Canon
8:20	• Update Asia Pacific	B. Wolschrijn, TNO
8:30	• Update Europe	A. Wüest, SEMATECH
	• Update US	
8:40	EUV Resist Outgassing and Optics Contamination	N. Harned, ASML
8:50	• “Resist Outgassing Qualification for Alpha Demo”	I. Pollentier, IMEC
9:00	• “Resist outgassing plans at IMEC”	T. Aoki, Nikon
9:10	• “Acceptable Photoresist Outgassing”	G. Denbeaux, University at Albany
9:20	• “Witness Plate Testing Lessons Learned and Suggestions for Future Protocols”	
9:30	• “Implementing Total-Pressure Rise Method for Resist Outgas Measurement”	K. Orvek, SEMATECH/Intel
	• Discussion	K. Orvek, SEMATECH/Intel
10:15	Break	
10:30	EUV Optics and Mask Contamination	T. Madey, Rutgers University
10:40	• “Carbon accumulation and mitigation on model electron-irradiated TiO₂ capping layers: a comparison with Ru”	M. Niibe, University of Hyogo
10:50	• “Analysis of EUVL optics contamination using <i>in situ</i> XANES technique”	G. Denbeaux, University at Albany
11:00	• “Effect of out-of-band light on optics and mask contamination”	Sh. Hill, NIST
11:10	• “Studies of carbon growth on multilayer mirrors”	I. Nishiyama, Selete
11:20	• “SFET optics contamination status”	A. Wüest, SEMATECH
11:30	• “Analysis of Optics and Mask Contamination in SEMATECH EUV METs”	A. Wüest, SEMATECH
	• Discussion	
12:00	Adjourn and Lunch	



Action Items from last TWG meeting San Jose, CA, March 1, 2007

1. Participants to provide feedback to SEMATECH with suggestions and comments on witness plate testing standardization and NIST proposal.

No significant response. Today's discussion will address implementation, possible standardization and importance of resist outgassing testing.

2. FOM to check with TNO what used angle of incidence is (where are the samples optimized) in witness plate testing, and to provide feedback to SEMATECH.

Angle of incidence = 6 degrees

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Rooms

- **Lunch:** Mid-sized hall
- **Resist TWG:** 107/108 (same room).

Next IEUVI Optics Contamination and Lifetime TWG Meeting

- SPIE Advanced Lithography Conference, San Jose, CA, USA
- February 28, 2008

Thank you

Thank you very much for your participation and contribution!