# 2014 International Symposium on Extreme Ultraviolet Lithography
October 27-29, Washington, D.C.

## Opening Address & Program Overview

Stefan Wurm, SEMATECH
Patrick Naulleau, LBNL

EUVL

# Welcome to the 2014 EUVL Symposium!

Hosted by:

SEMATECH

In cooperation with:

EIDEC

imec

Symposium Chair: Stefan Wurm (SEMATECH / GLOBALFOUNDRIES)

Symposium Co-Chair: Toshiro Itani (EIDEC)

Symposium Co-Chair: Kurt Ronse (imec)

International Symposium on Extreme Ultraviolet Lithography

October 27-29, 2014 • Washington, D.C.

# 2014 EUVL Symposium Sponsors – Thank You!

SCREEN
SOKUDO DUO

PHOTRONICS

ASML

BRUKER

ENERGETIQ

EIDEC

euv tech

Fraunhofer
ILT

FUJIFILM
Value from Innovation

GIGAPHOTON

HITACHI
Inspire the Next

JSR Micro JSR
MATERIALS INNOVATION

Lasertec

LUXEL

Nikon

optiX fab.

Rigaku

SEMATECH

synopsys®

TEL™

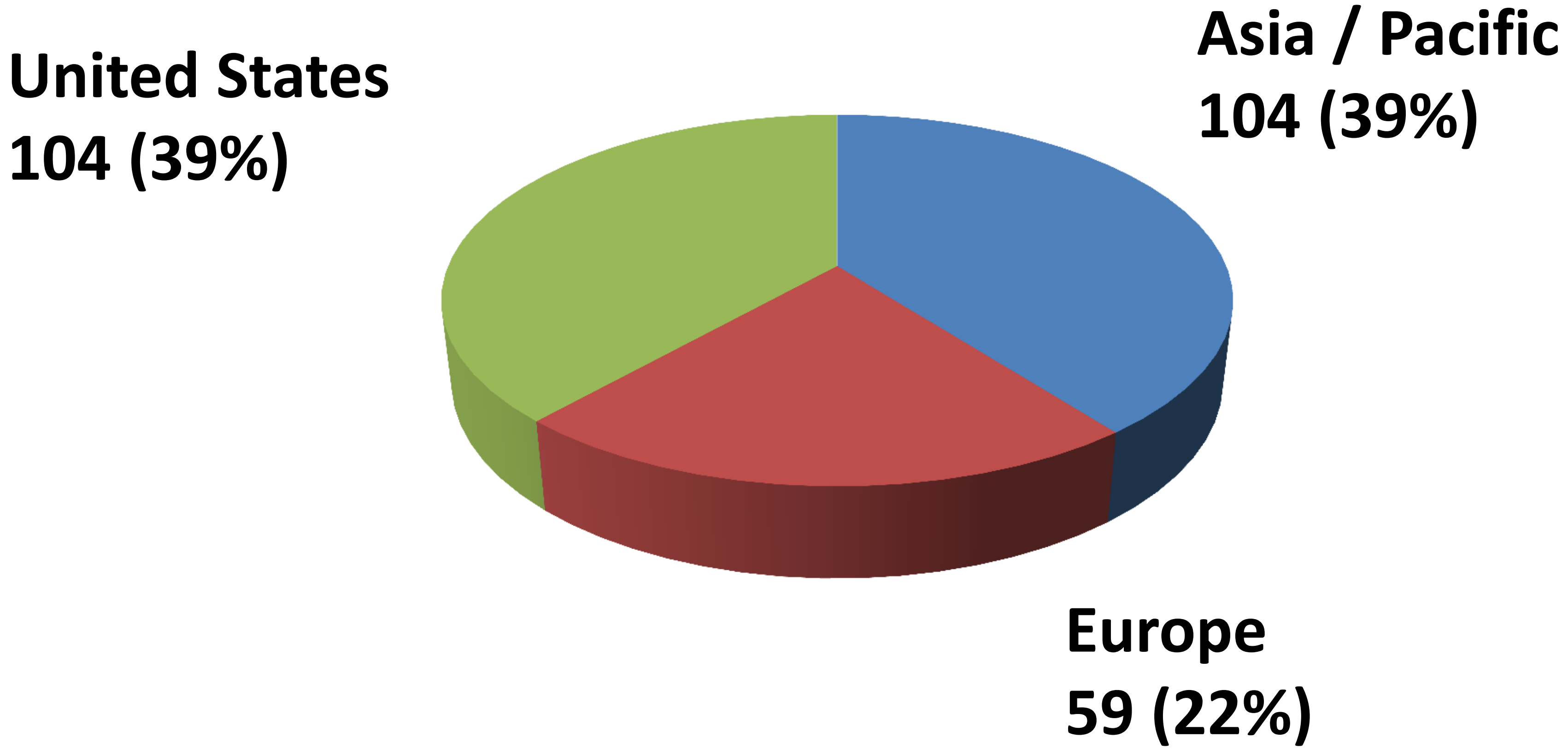
tok

ZEISS

# New in 2014: Student Sponsorships

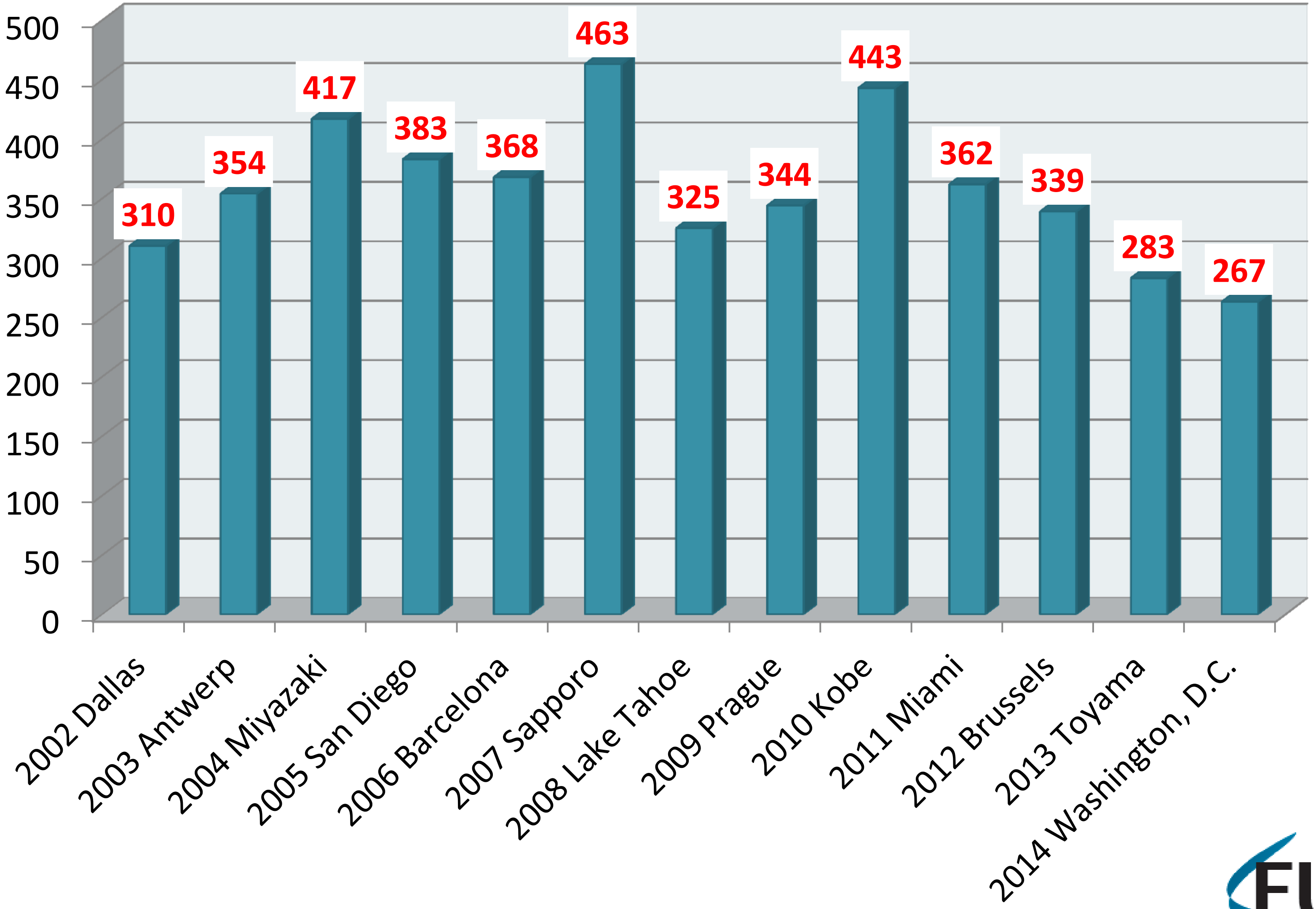
- A set amount of the symposium sponsorship contribution has been assigned to support student attendance of the symposium
- Sponsorships are being awarded through the 3-region (Asia/Pacific, Europe, North America) symposium abstract review process which results in a ranking of the submitted student abstracts
- Determined by the available funds, the top 11 number of students are being awarded sponsorship which includes registration, travel, and (shared) hotel rooms
- In 2014, student sponsorship were awarded to:
  - 4 students from North America
  - 3 students from Europe
  - 4 students from Asia / Pacific

# EUVL Symposium Attendance in 2014: By Geographic Region



267 registered as of October 26

# EUVL Symposium Attendance by Year



# The EUVL Symposium is evolving

- Since we started the EUVL Symposium in 2002, the emphasis has been very much on EUV readiness with some sprinkling in of EUV extendibility
- As EUV Lithography moves into pilot line introduction we decided, starting with the 2014 EUVL Symposium to shift the conference focus on EUV extendibility
- The 2014 EUVL Symposium program is split roughly 50:50 between contributions focusing on EUV readiness and EUV extendibility

# OSA International Workshop on Compact EUV & X-ray Light Sources

Co-locating the two conferences provides a unique opportunity for the EUV and X-ray light source developers to

- interact with the EUV lithography users
- learn about their fundamental and practical needs
- assess the current status of EUV/Soft X-ray sources

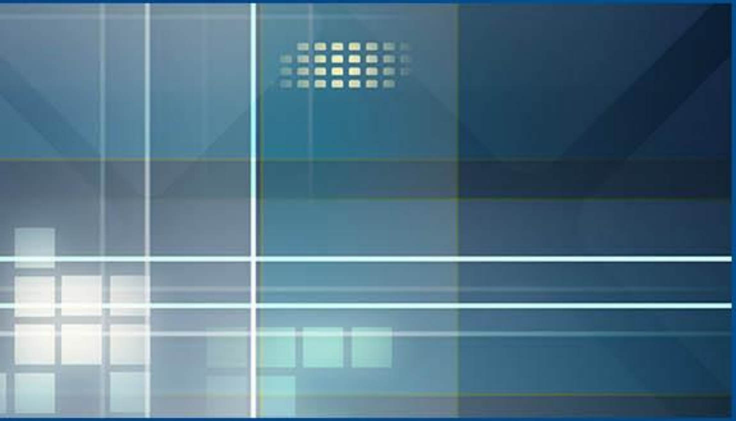
- 52 attendees have registered for both, the EUVL Symposium and the OSA Workshop

# The 2014 EUVL Symposium Program Team

- Program Chair: Patrick Naulleau (LBNL)
  - Dr. Naulleau has been on the leading edge of EUV lithography research for over a decade
  - 17 years at Lawrence Berkeley National Laboratory and in addition 3 years Associate Professor at University at Albany, SUNY
  - Since April 2010 Director of the Center for X-ray Optic at Lawrence Berkeley National Laboratory
- Program Co-Chairs:
  - Soichi Inoue (EIDEC)
  - Winfried Kaiser – (Carl Zeiss)

# The 2014 EUVL Symposium Support Team at the conference site

Marcy & Kelly

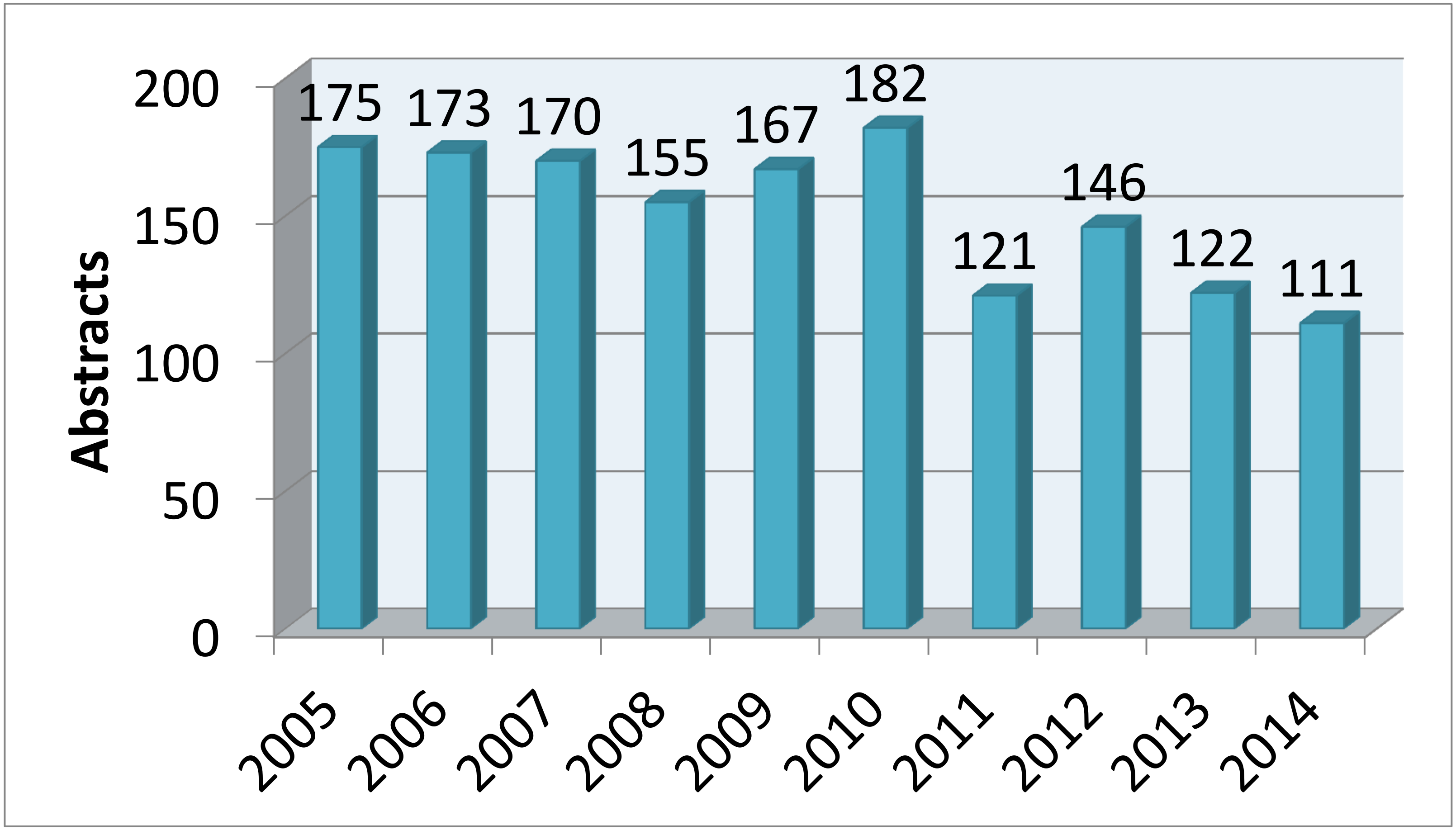


# Program Overview

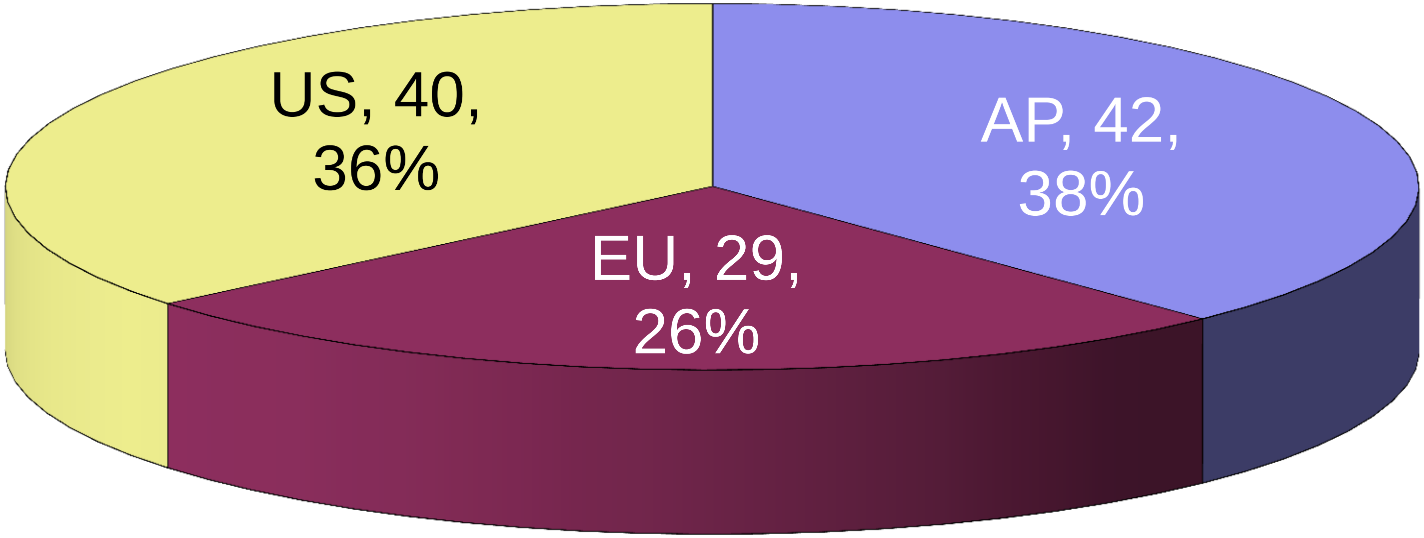
# Conference Topics at a Glance

| Mon<br>Oct-27 | Tue<br>Oct-28 | Wed<br>Oct-29 | Thu<br>Oct 30 | Fri<br>Oct-31 |
|---|---|---|---|---|
| 2014 EUVL Symposium | | | OSA International Workshop on Compact EUV & X-ray Light Sources | |
| EUVL Insertion Readiness<br>Tools<br>Source<br>Resist | EUVL Insertion Readiness<br>Mask Inspection<br>Optics<br>Contamination | EUVL Extension<br>High NA<br>Next Gen Sources<br>Next Gen Materials | Future Compact Source Requirements and Technologies<br>EUV Litho<br>Mask inspection<br>Wafer inspection<br>Materials discovery<br>Biomedical | Workshop report outs |

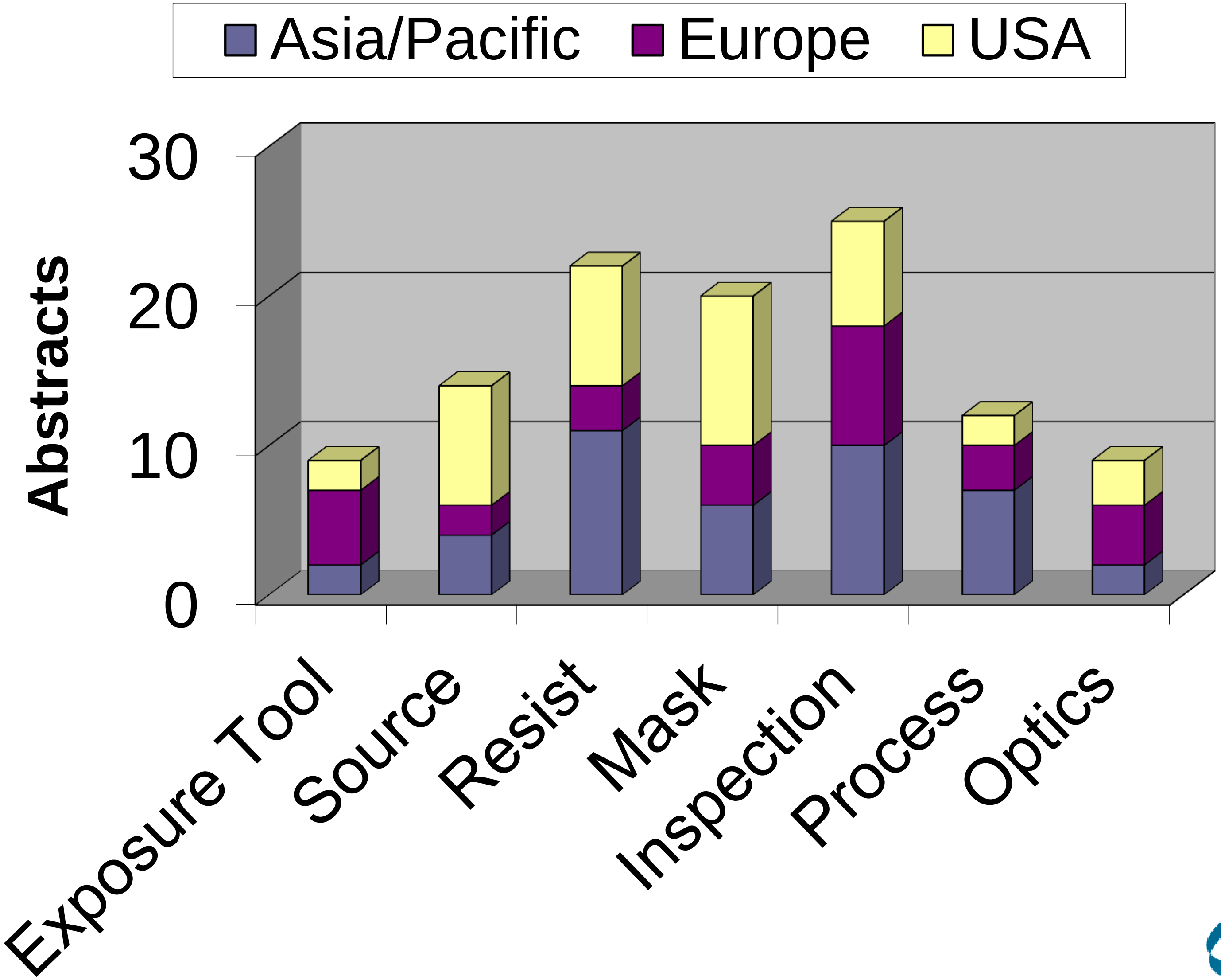
# Abstract count drops to 111



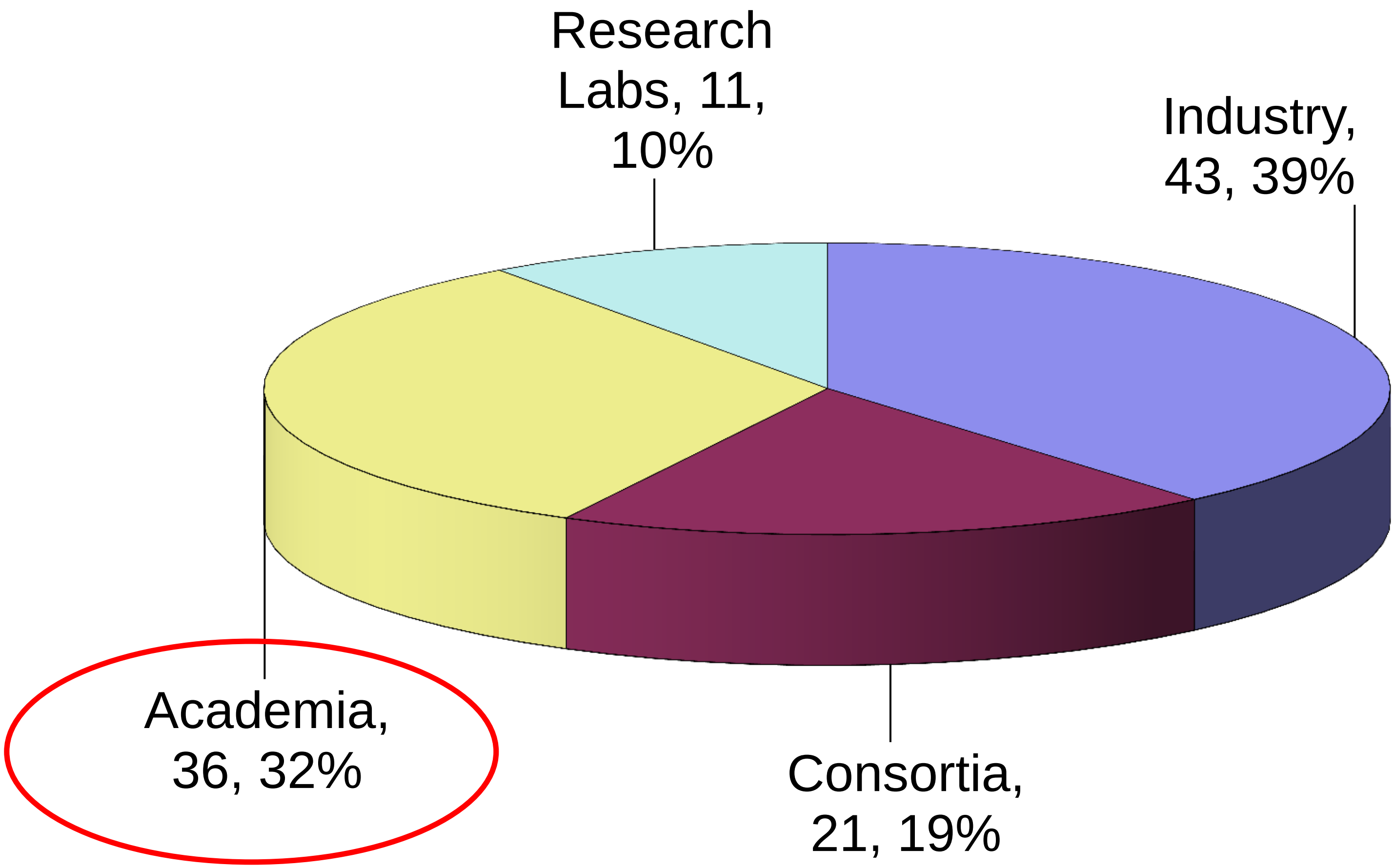
# Abstracts by region



# Abstracts by topic



# Abstracts by affiliation



50% increase since 2011

# 11 student scholarships awarded across 8 universities

CORNELL UNIVERSITY FOUNDED A.D. 1865

THE UNIVERSITY OF CALIFORNIA BERKELEY 1868
LET THERE BE LIGHT

UNIVERSITAS STUDII PADUANI MCCXXII

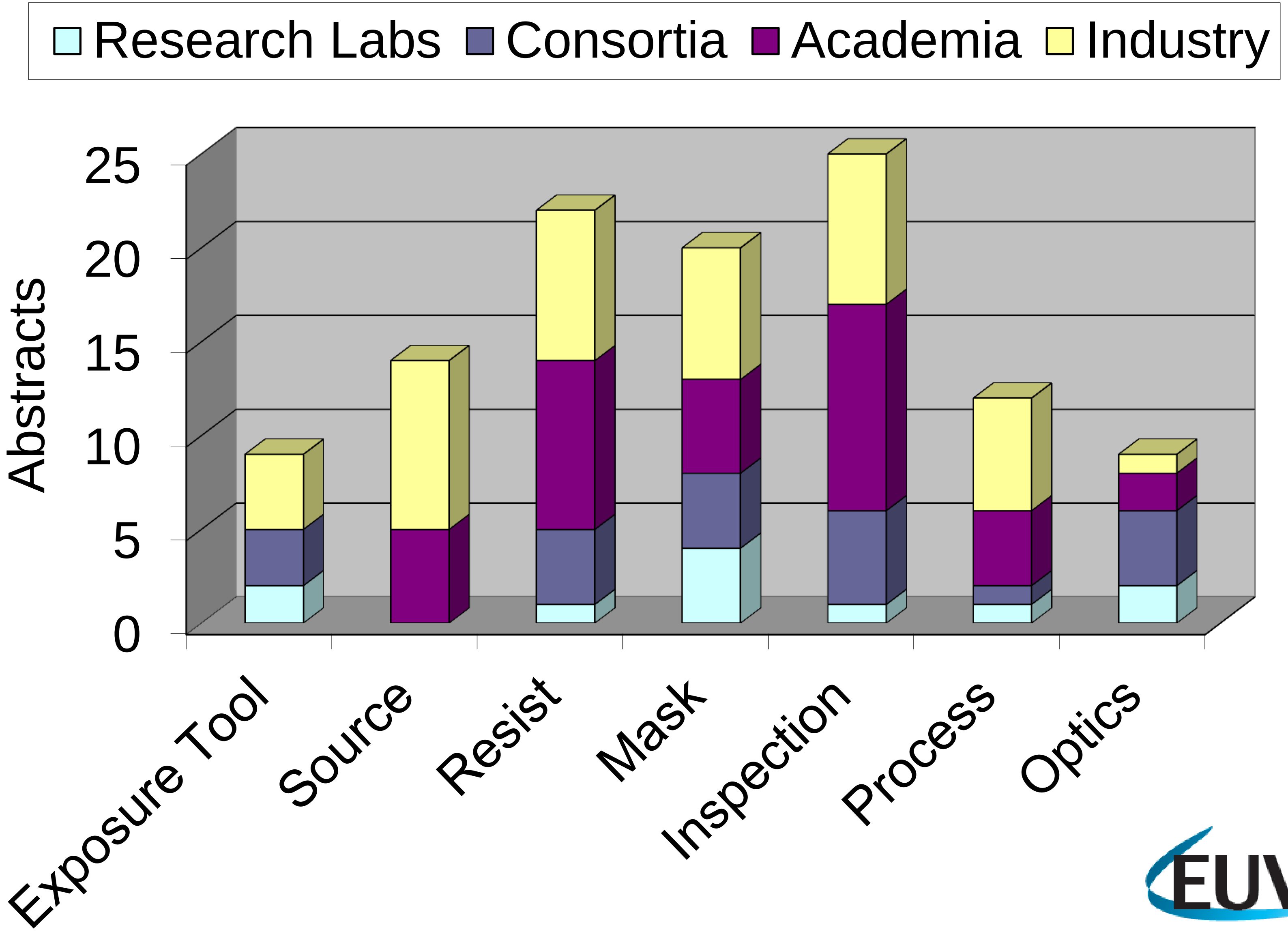
UCD DUBLIN

HANYANG UNIVERSITY 한양 1939

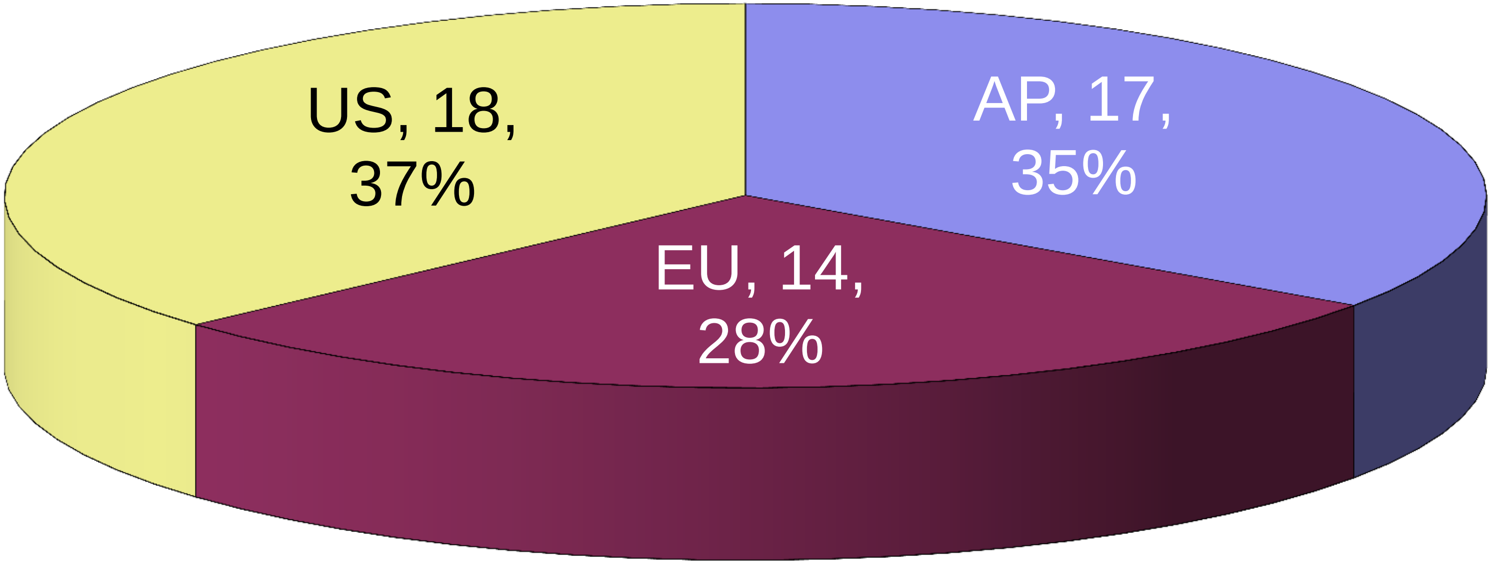
COLLEGES OF NANOSCALE SCIENCE AND ENGINEERING
SUNY POLYTECHNIC INSTITUTE

RWTH AACHEN UNIVERSITY

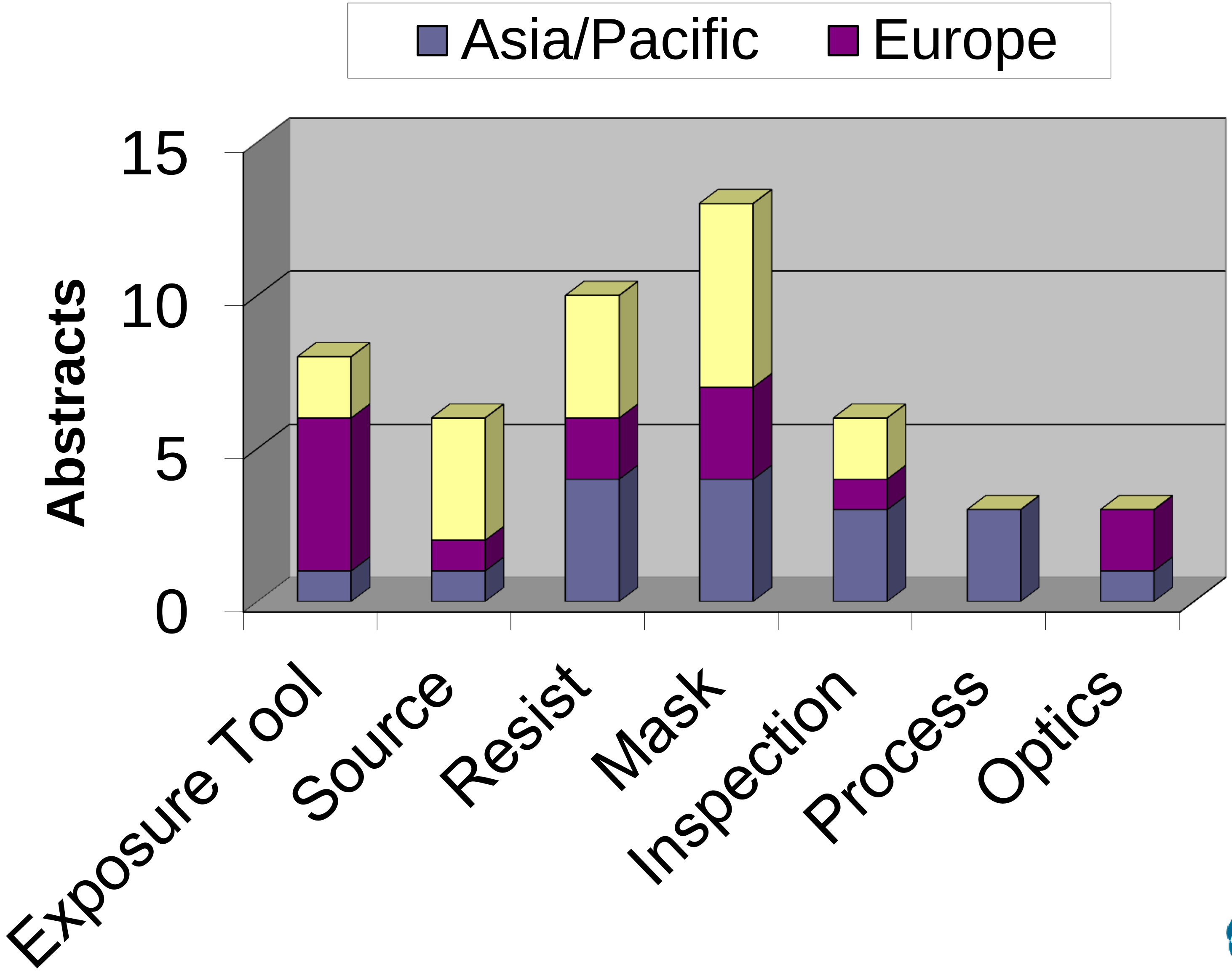
# Abstracts by affiliation



# Oral talks by region



# Oral talks by topic



# Best Presentation / Best Poster Awards

- We will be awarding $1,000 cash prizes to the best presentation and best poster of the 2014 EUVL Symposium
- Best Presentation and Best Poster selection:
  - When you return from the afternoon break on Wednesday, a voting sheet will be at your seat. Please turn in this sheet to Marcy / Kelly right after the end of the last session on Wednesday
  - The best poster will be selected by an industry group of senior experts
  - Winners will be announced at the end of the session on Wednesday.

# A friendly reminder for

- The audience to:
  - Set cell phones to vibrate
  - Do not take photographs or recordings
  - Please use microphone for questions
- The presenters to:
  - Turn in and check talks
  - Stick to your allotted time