

March 1, 2007
IEUVI Resist TWG meeting, San Jose

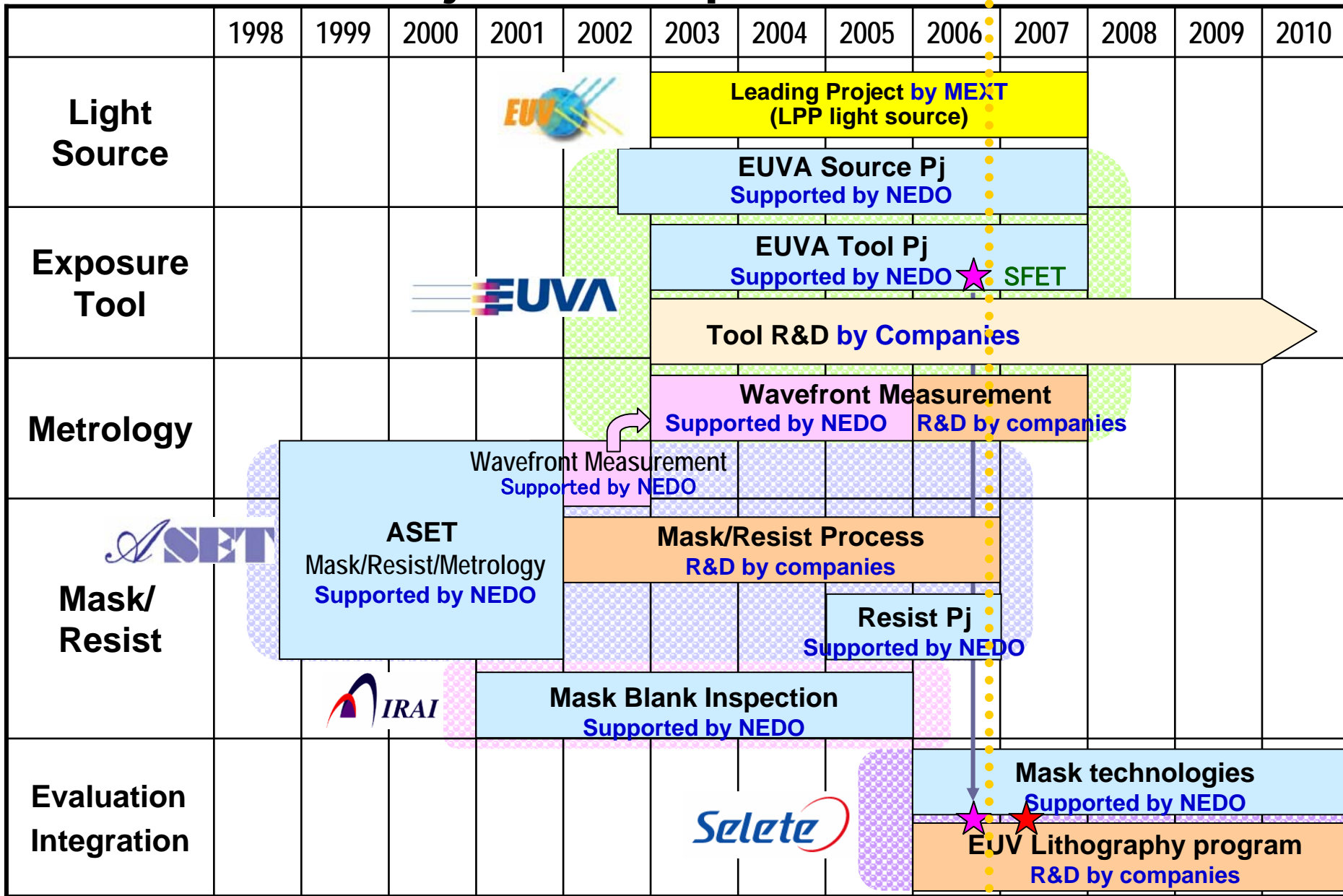
IEUVI Resist TWG meeting

Japan update

ASET EUV Process Technology Laboratory
Iwao Nishiyama

This work was supported by NEDO

EUVL R&D Projects in Japan

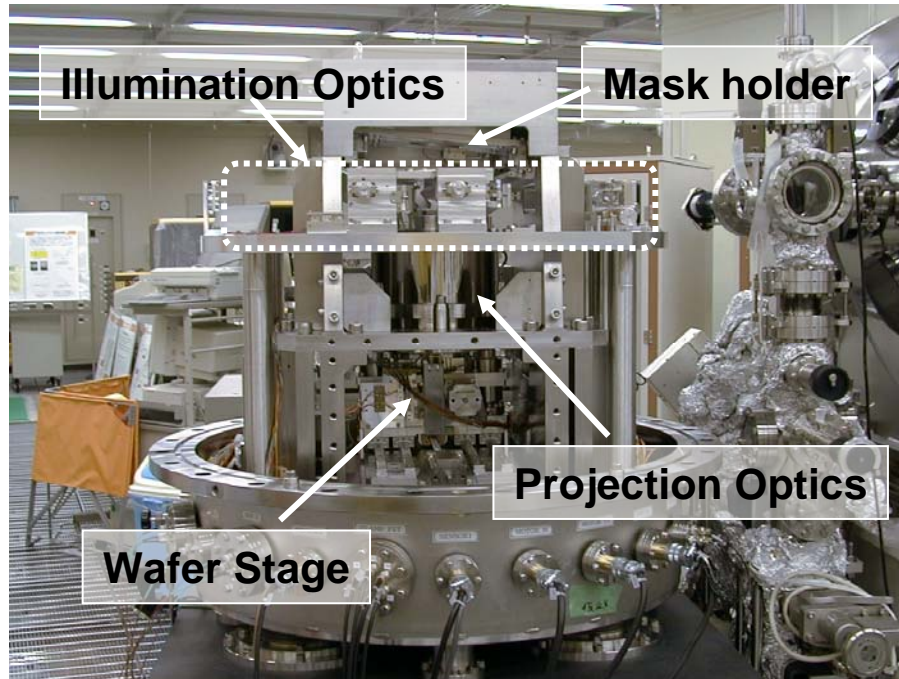


   Government Fund

  Companies Pj

ASET Exposure Tool

HiNA

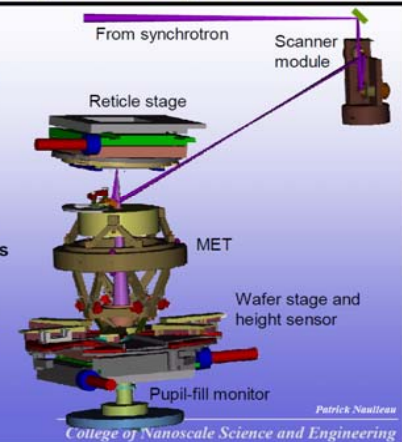


MET



Berkeley MET exposure tool

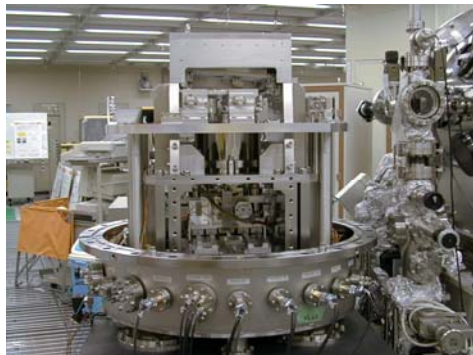
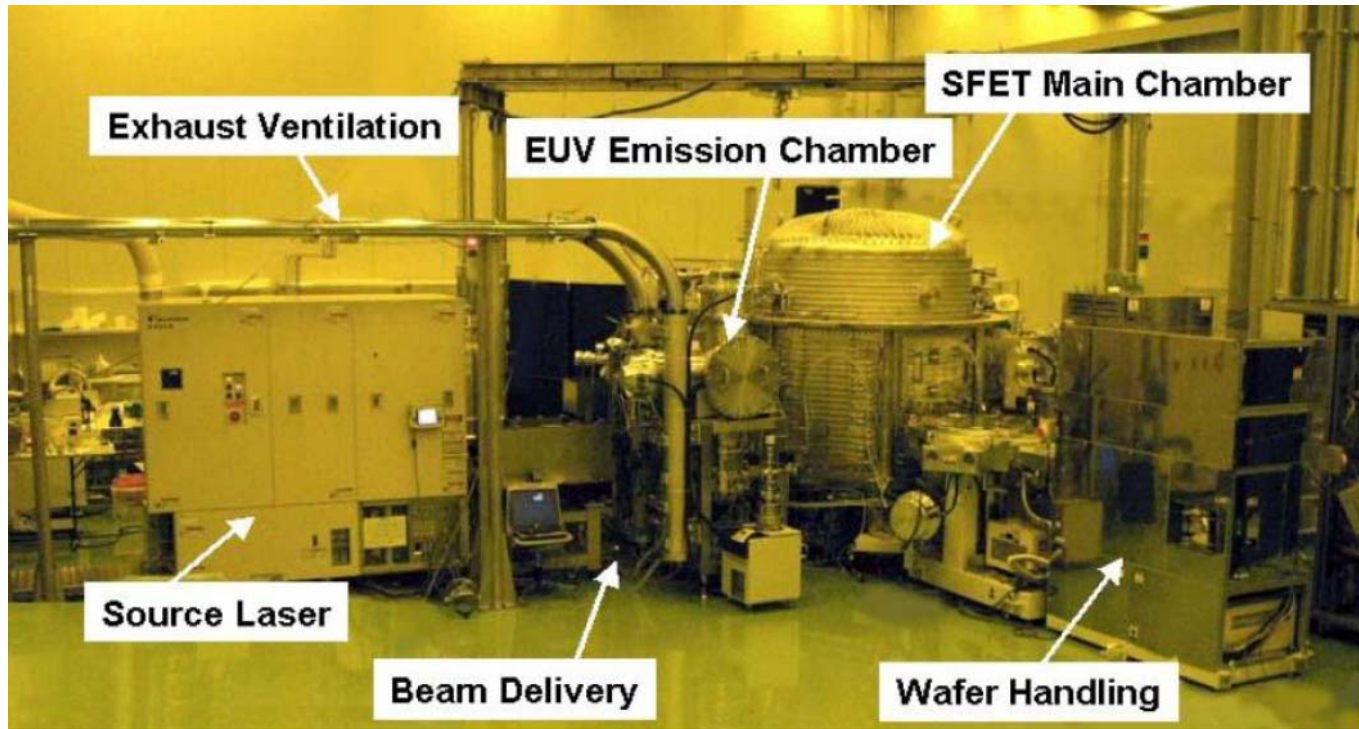
- Based on MET optic
- Magnification = 5x, NA = 0.3
- Rayleigh resolution = 27 nm
- Field size = 200x600 μm
- Programmable coherence illuminator for low k_1
- Reticle and wafer load-lock and manual transfer systems
- Wafer-height sensor
- nm-resolution wafer-height sensor and focus actuation
- Pupil-fill monitor



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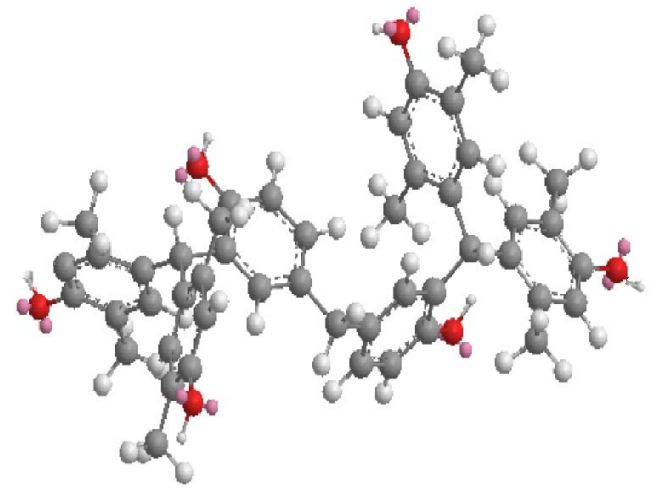
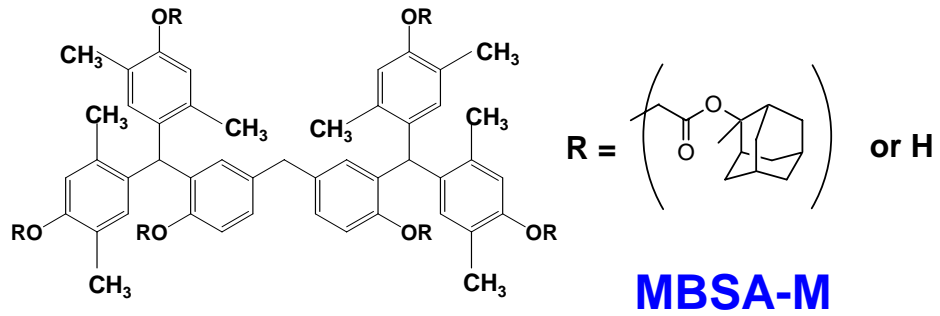
SELETE Exposure Tool

SFET



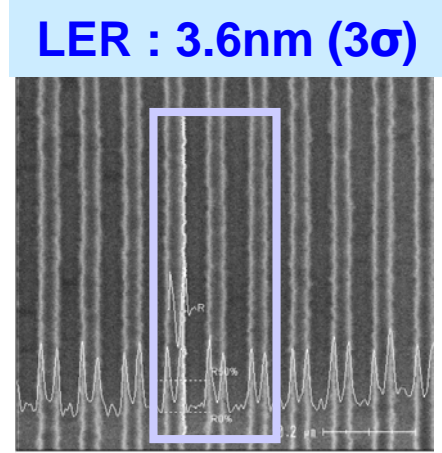
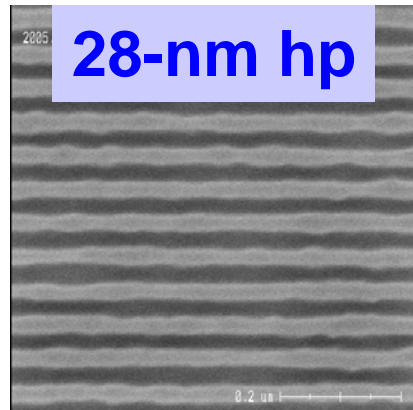
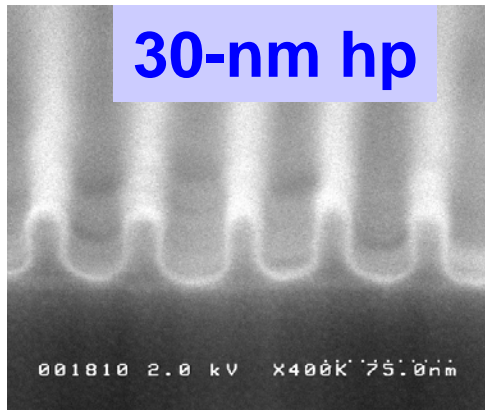
HiNA

Molecular resist evaluation in NEDO project



Pattern collapse improvement by molecular design

LER evaluation with 2 um measurement length



Screening of polymer resist

High resolution resist

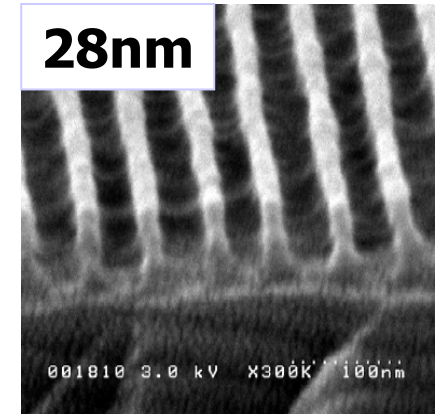
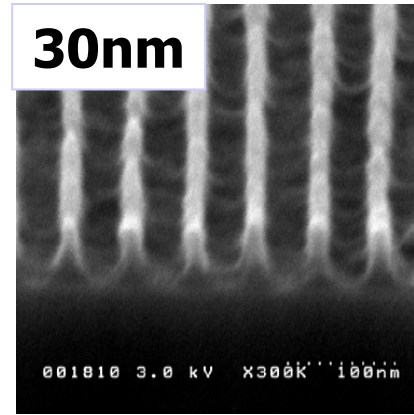
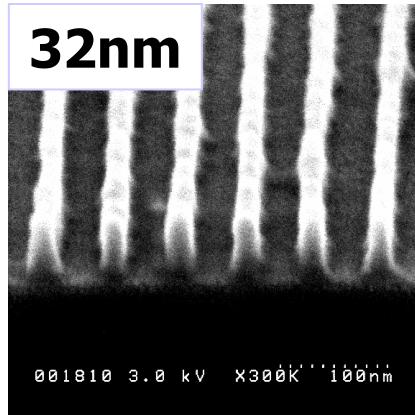
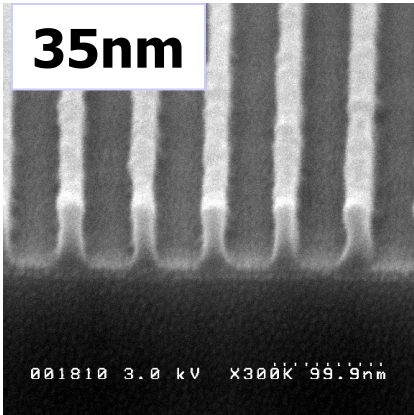
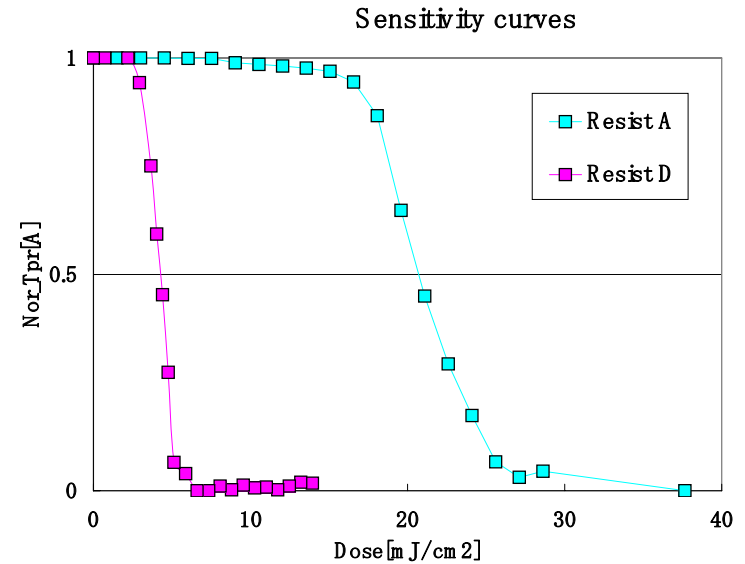
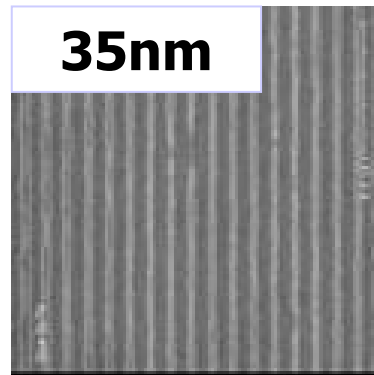
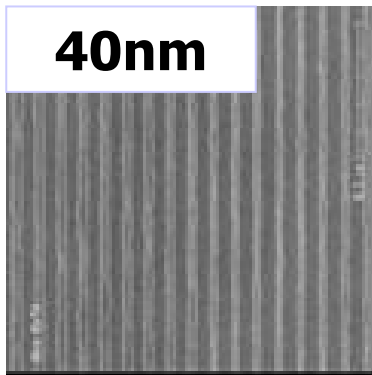
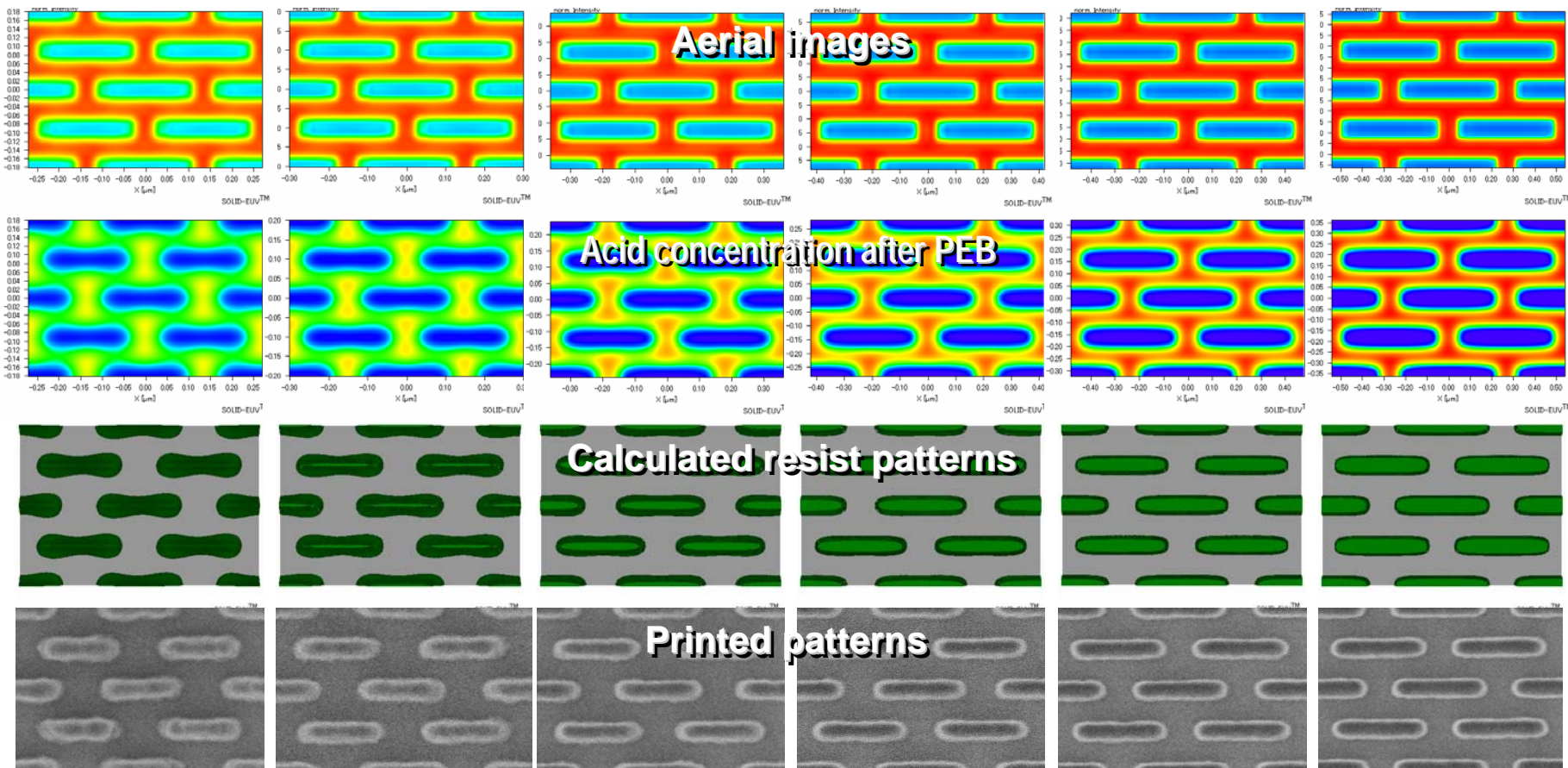


Photo-speed improvement



Simulation results of various sizes of pattern B



hp 45 nm hp 50 nm hp 60 nm hp 70 nm hp 80 nm hp 90 nm

◆ Simulation conditions ◆ Aberration: 0.7nmRMS, Flare: 10%, Diffusion length of acid: 20nm

Calculated shapes of resist patterns also agreed well with the experimental results for pattern B.