



2006 European update

EUROPE

- >35 autonomous countries
- National R&D Programs
- IST program by European Community
- EUREKA: common R&D framework:
 - largest project: MEDEA+



European EUV R&D support programs

EXTATIC, 2001-2005,

EUVSources, 2001-2004,

EXTUMASK, 2001-2004,

EXCITE, 2002-2005,

more Moore: 2004-2006,

EAGLE, 2006-2008,

“develop the technology for an EUV lithographic platform for high volume manufacturing”

ASML,
FOM,
Carl Zeiss SMT AG,
Philips EUV,
Xtreme Technologies,
Alcatel,
Sagem,
Media Lario

European EUV Project partners



euvl Symposium
2006
Barcelona

Arrival at IMEC and Albany Nanotech (Aug.'06)

Albany

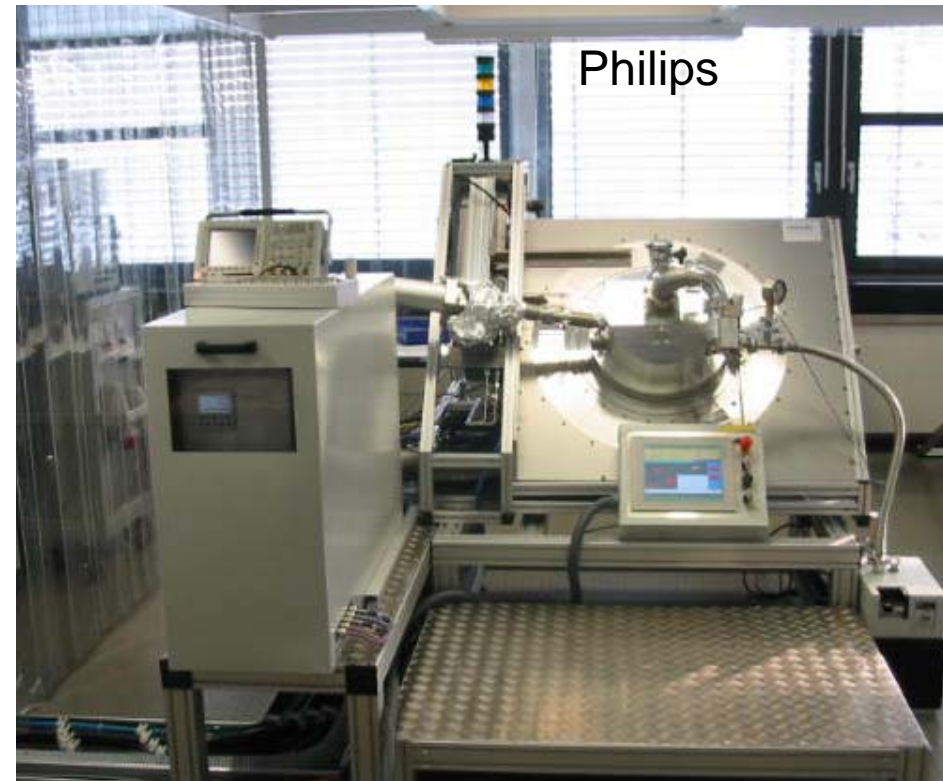
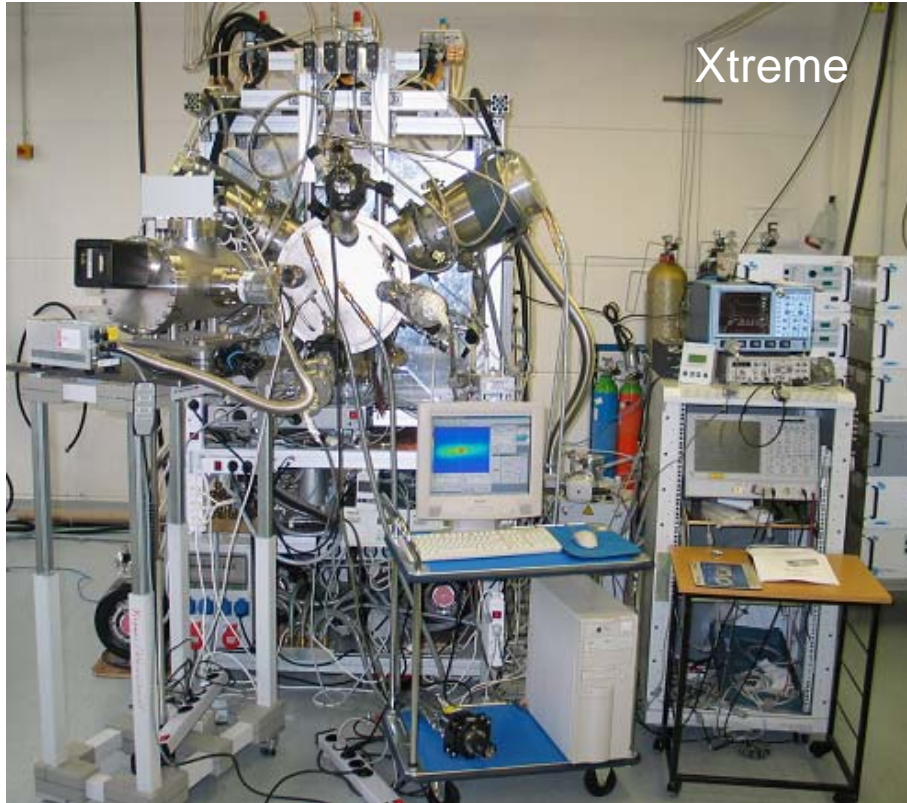


IMEC



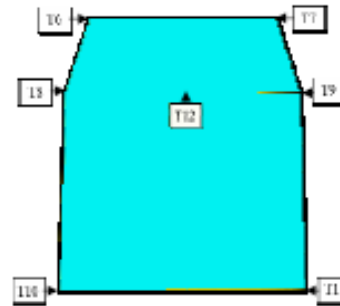
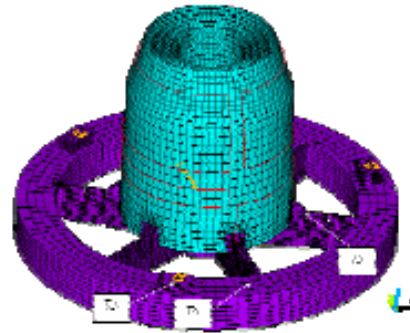
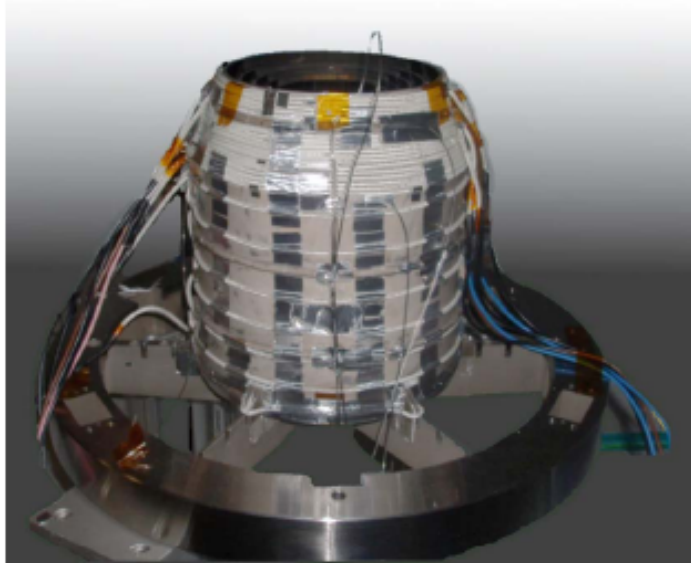
AD-tools are being installed at two customer sites

Hardware built-up in the project



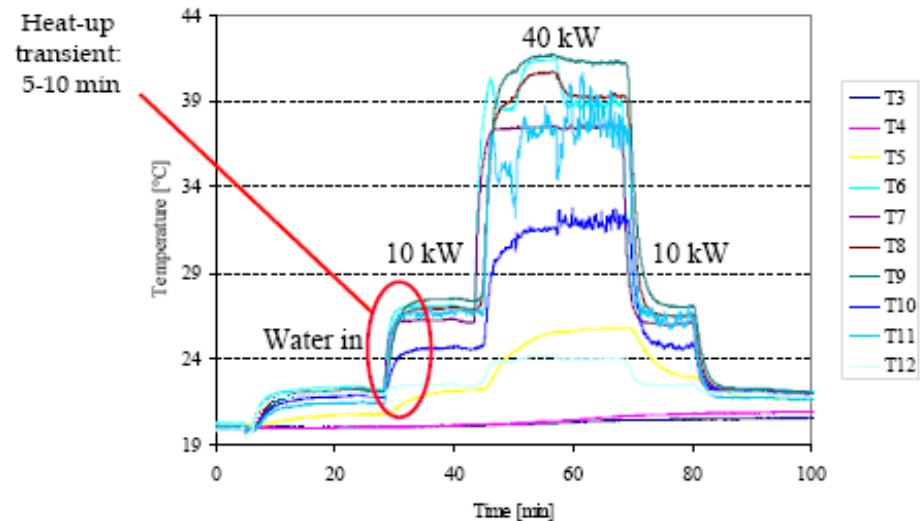
Prototype Tin sources at XTREME technologies and Philips

The collector under test



Thermocouple positions

Temperatures During One of the Runs



Thermal design allows very high power operation

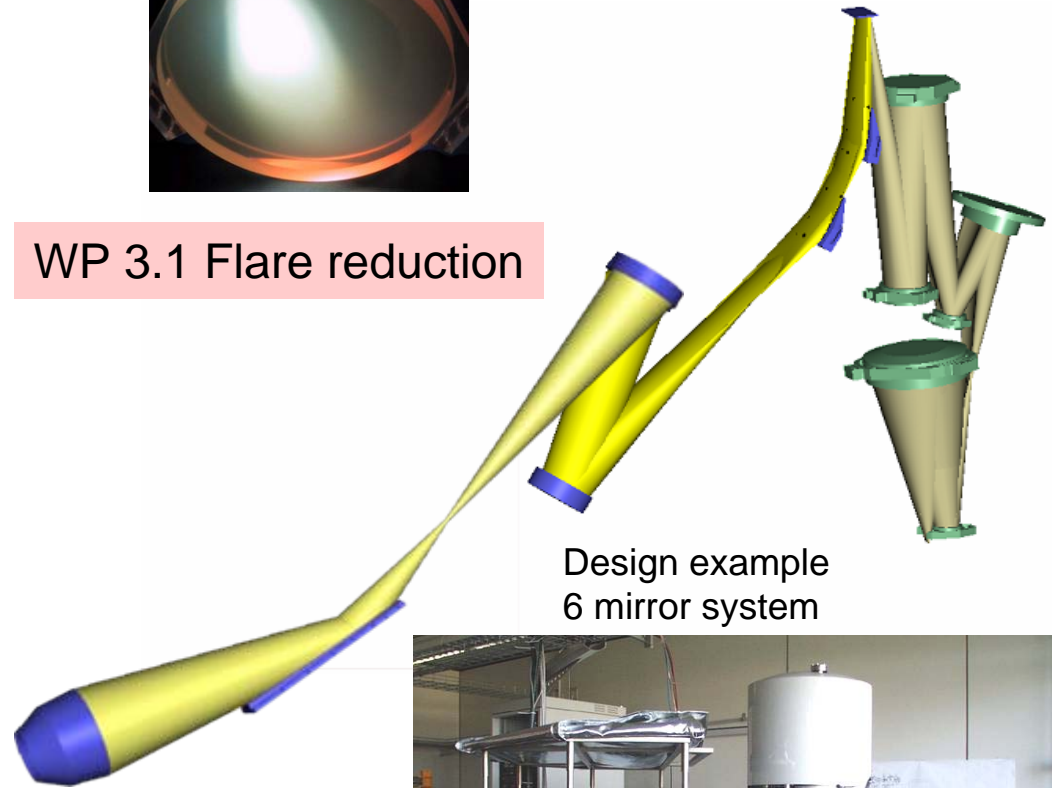
WP 3: EUV Optical System

Key specifications

λ	13.5 nm
NA	0.25
Resolution	32 nm
field	26x33 mm ²
Magnification	4x



WP 3.1 Flare reduction



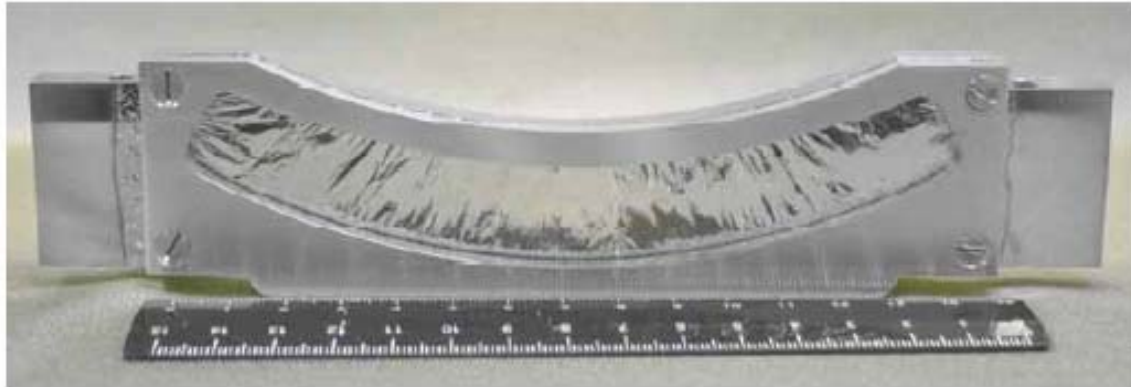
WP 3.3: EUV Illumination System

WP 3.2 Optics Lifetime

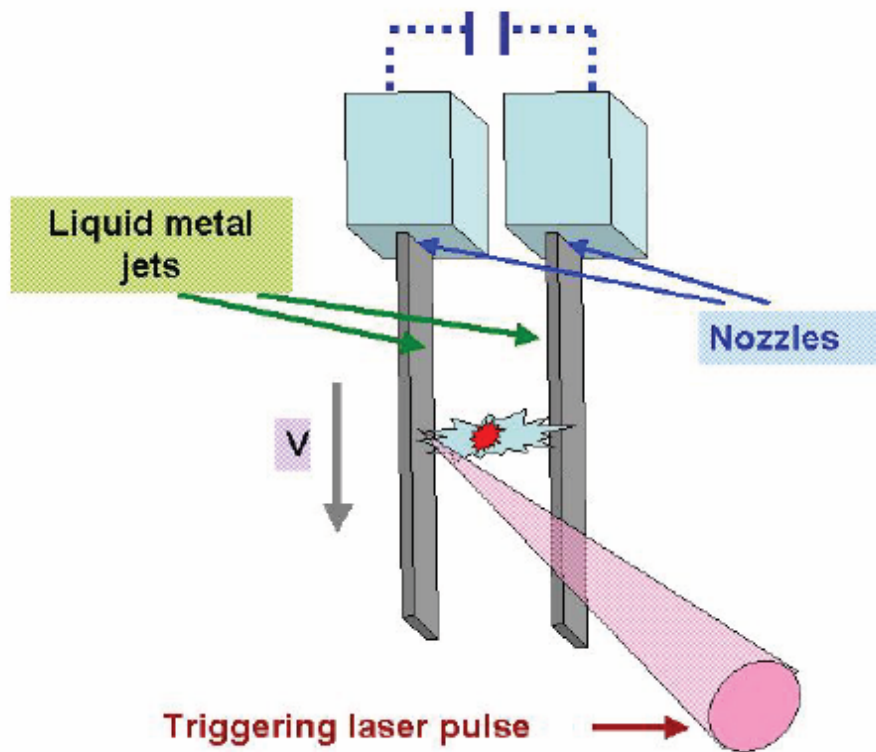


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First SPF for ADT

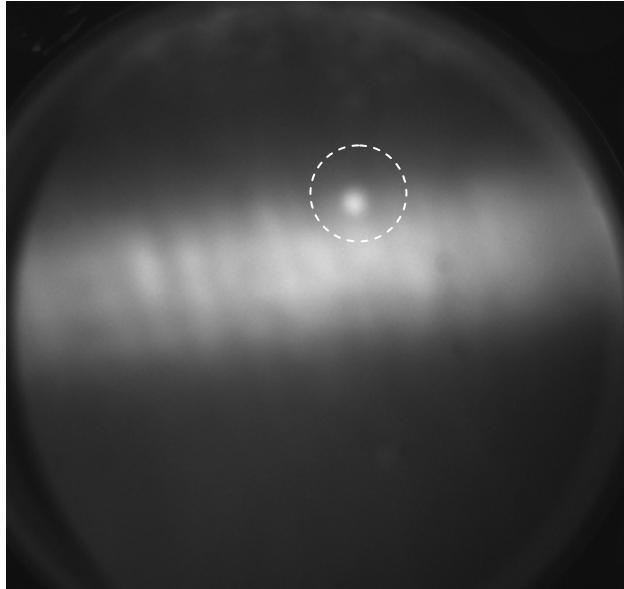


Main design features of “New Approach Source...”



- EUV collectable angle of $\sim\pi$ str.
- No moving part except liquid tin jets
- “New” electrode for every new shot, if $V > \sim 10\text{-}30$ m/s
- Compact geometry leads to small inductance of the system and good CE
- Small size of full EUV source (together with electrodes and cooling systems)
- Free orientation in space
- Estimated Liquid tin pump power does not exceed 200 W.

Inspection of Schott EUVL mask blank with EUV-PEEM



50 μm

92 eV

Schott EUVL Mask blank

Quartz-Substrate 6025 (6 inch square; 0.25 inch thick)

11 nm Si-Capping on top of substrate

41 bilayers Mo/Si-Multilayer

**Large xy sample stage for
6 inch mask blanks**

