PAUL SCHERRER INSTITUT
PSI

Wednesday, June 23, 2021, 15:00 h
zoom
https://psich.zoom.us/j/63994508894?pwd=dHdZLyswbytBYW9JUWdpT2c1NjdXZz09

Please note the unusual time!

PSI Colloquium

Jos Benschop
ASML, U. Twente, NL

How optical lithography enabled Moore's Law

Abstract

Lithography has been the key enabler for Moore's Law over many decades.
As pointed out by Gordon Moore in his 1995 SPIE presentation, the "contribution from increased density from finer line widths has been constant over the last 25 years", a trend which continues to this day.
For decades this has been made possible through a combination of wavelength reduction, increased numerical aperture (NA) and pushing imaging closer to the physical limit (low-k1).
With the introduction of NA=0.33 EUV into volume manufacturing the imaging capability of optical scanners is back on its historical trend. The realization of a NA=0.55 EUV scanner is well on its way and will ensure geometrical shrink continues well into the next decade.

In the presentation we will start with overview of drivers of the electronics industry, next we will explain the role of optical lithography in IC making and how it enables shrink. We will end with past, present and future of Extreme UltraViolet (EUV) lithography, using 13.5nm light. The introduction of EUV brings unprecedented imaging capability and some new challenges like increased stochastically variations. Challenges and potential solutions will be shared.

People interested to meet the speaker online for a follow-up discussion are strongly encouraged to contact the speaker directly

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Brief Bio Jos Benschop

Jos Benschop received his MSc (cum laude) and PhD from physics faculty in Twente University.
From 1984 until 1997 he worked at Philips. At first in research labs in Eindhoven-The Netherlands and Sunnyvale-USA lateron he was responsible as “innovation manager” for the introduction of Compact Disc rewritable while working at the business unit Key Modules Group.

He joined ASML in 1997 where he was responsible for the “Next Generation Lithography” and initiated programs on ion-beam lithography, electron-beam lithography and Extreme Ultra Violet Lithography.

As Senior Vice President Technology he is currently responsible for research and system engineering within ASML.

He has published 30+ papers and generated 20+ patents. He is an SPIE fellow and was part-time professor at the University of Twente from 2011 until recent.

He is a member of the Netherlands Academy of Technology and Innovation (**https://www.acti-nl.org/nl**) . He has been appointed by the king as advisor to the Dutch government on science, technology and innovation (**https://www.awti.nl/**).