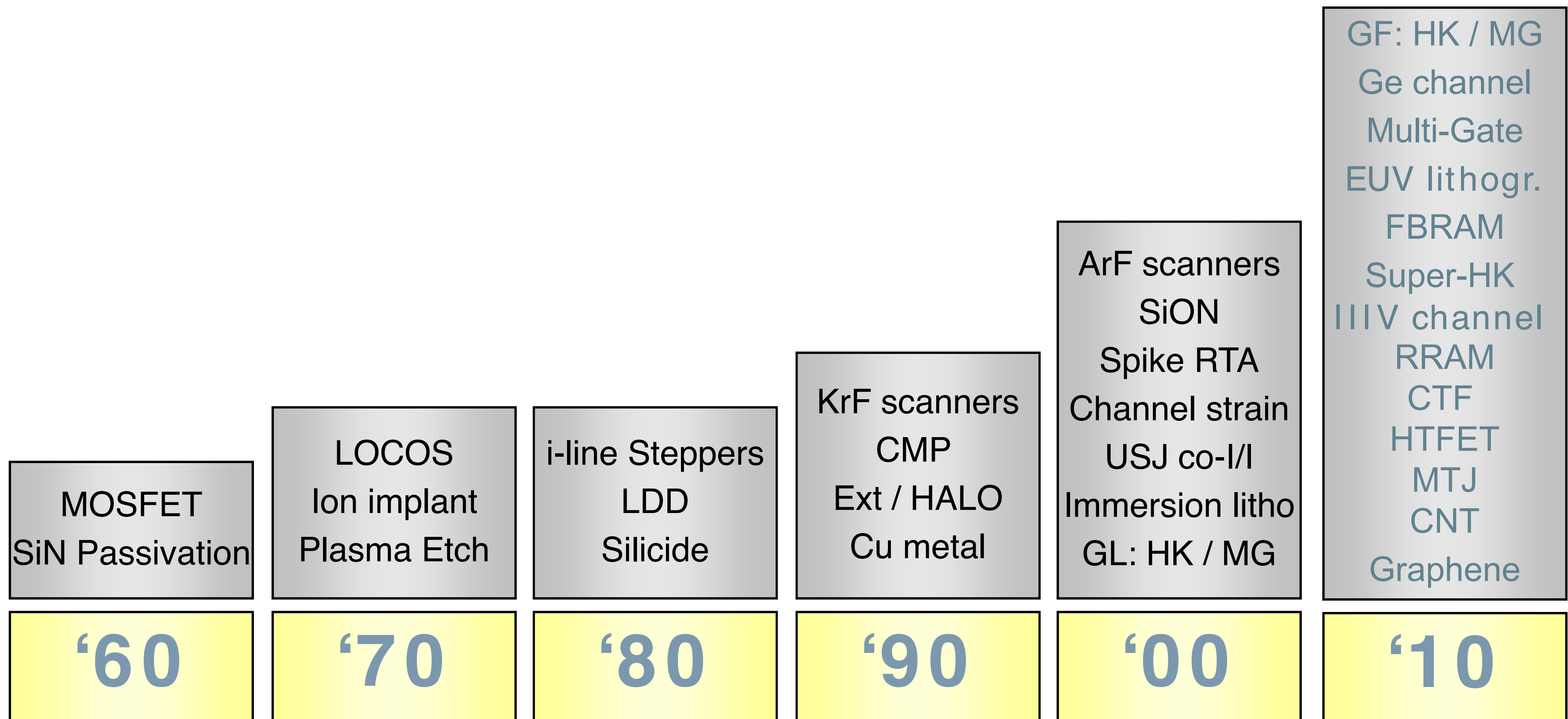
Technology scaling at an inflection point

WHAT'S NEXT?

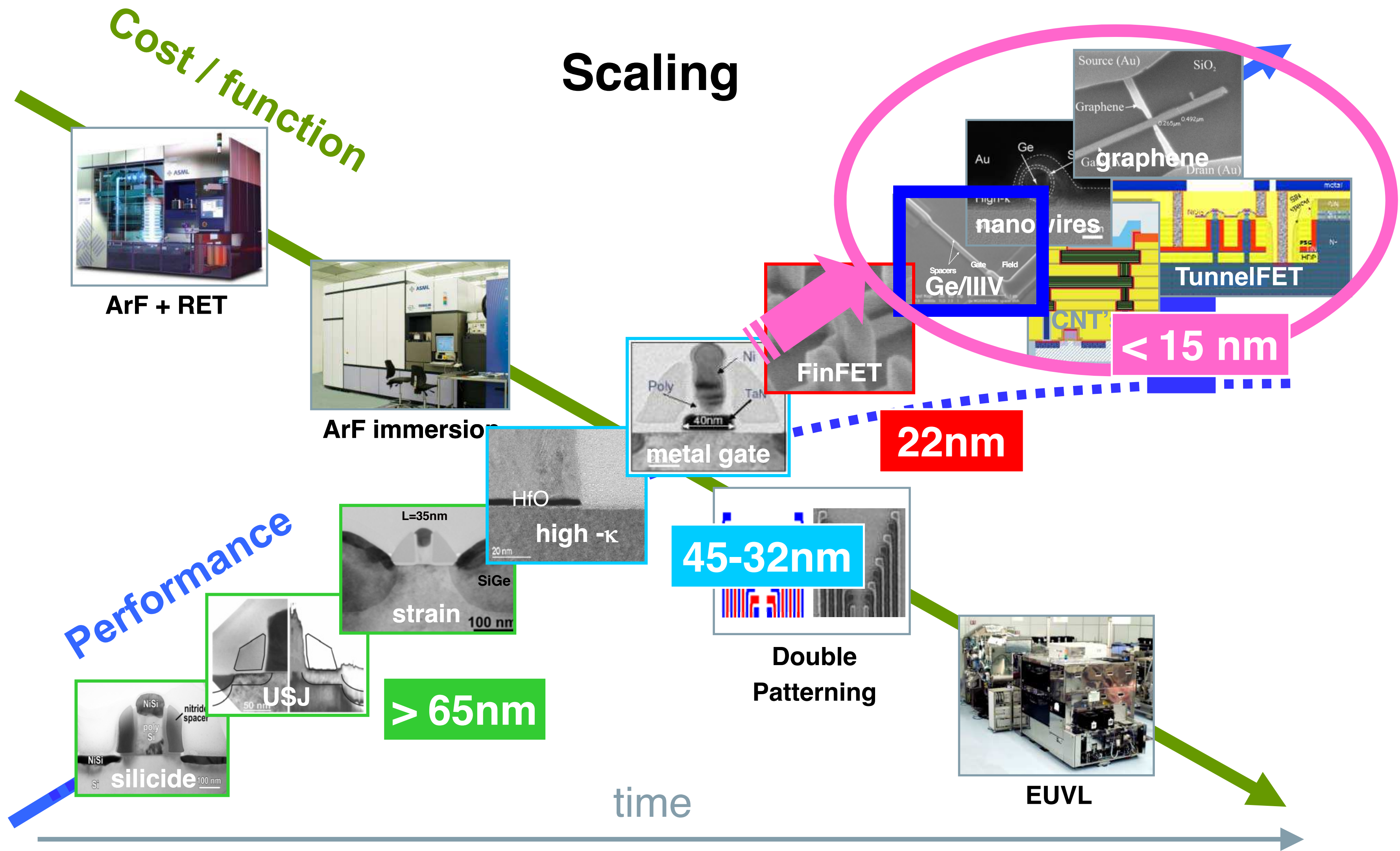
Lode Lauwers, IMEC

Research challenges

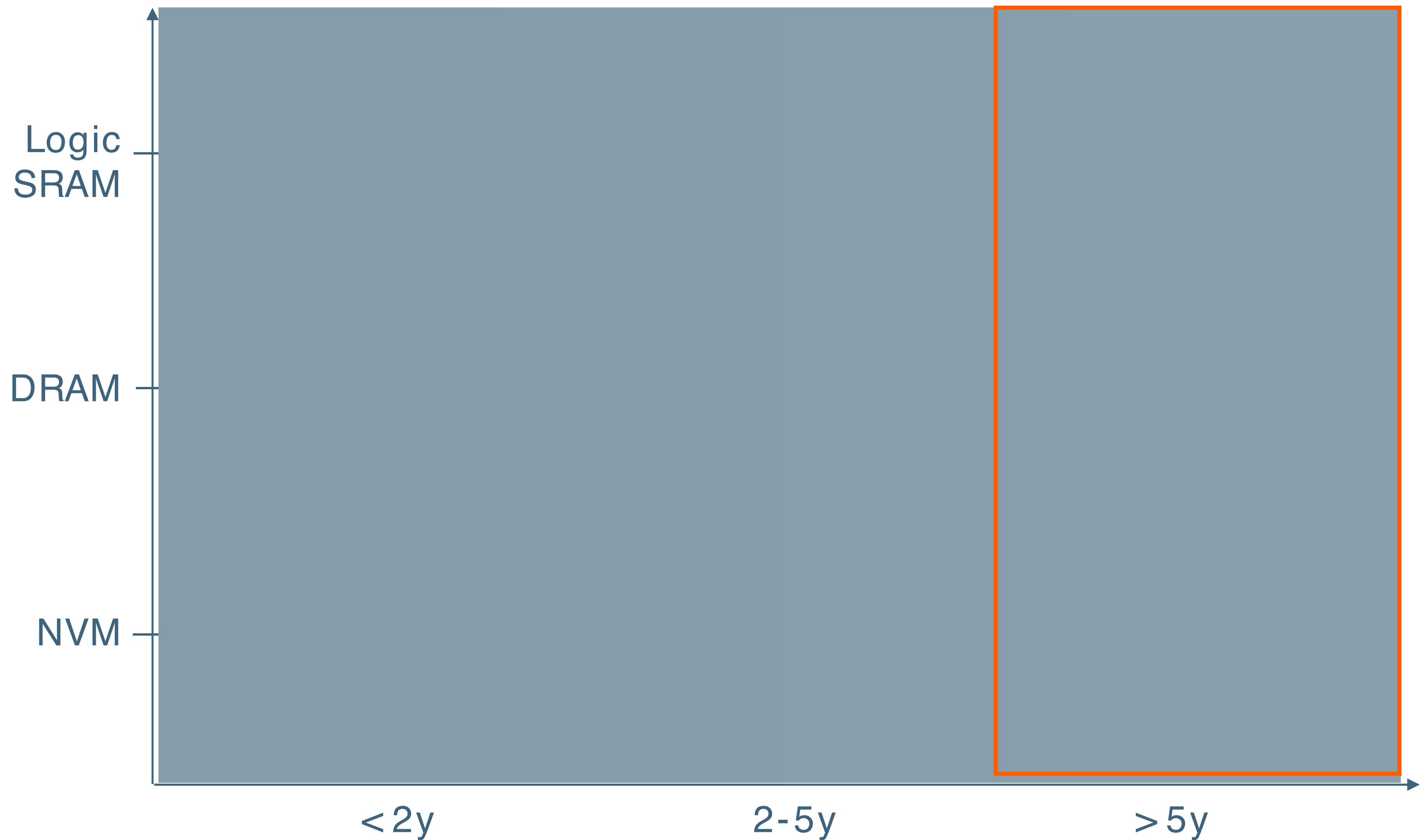
Technology complexity increases



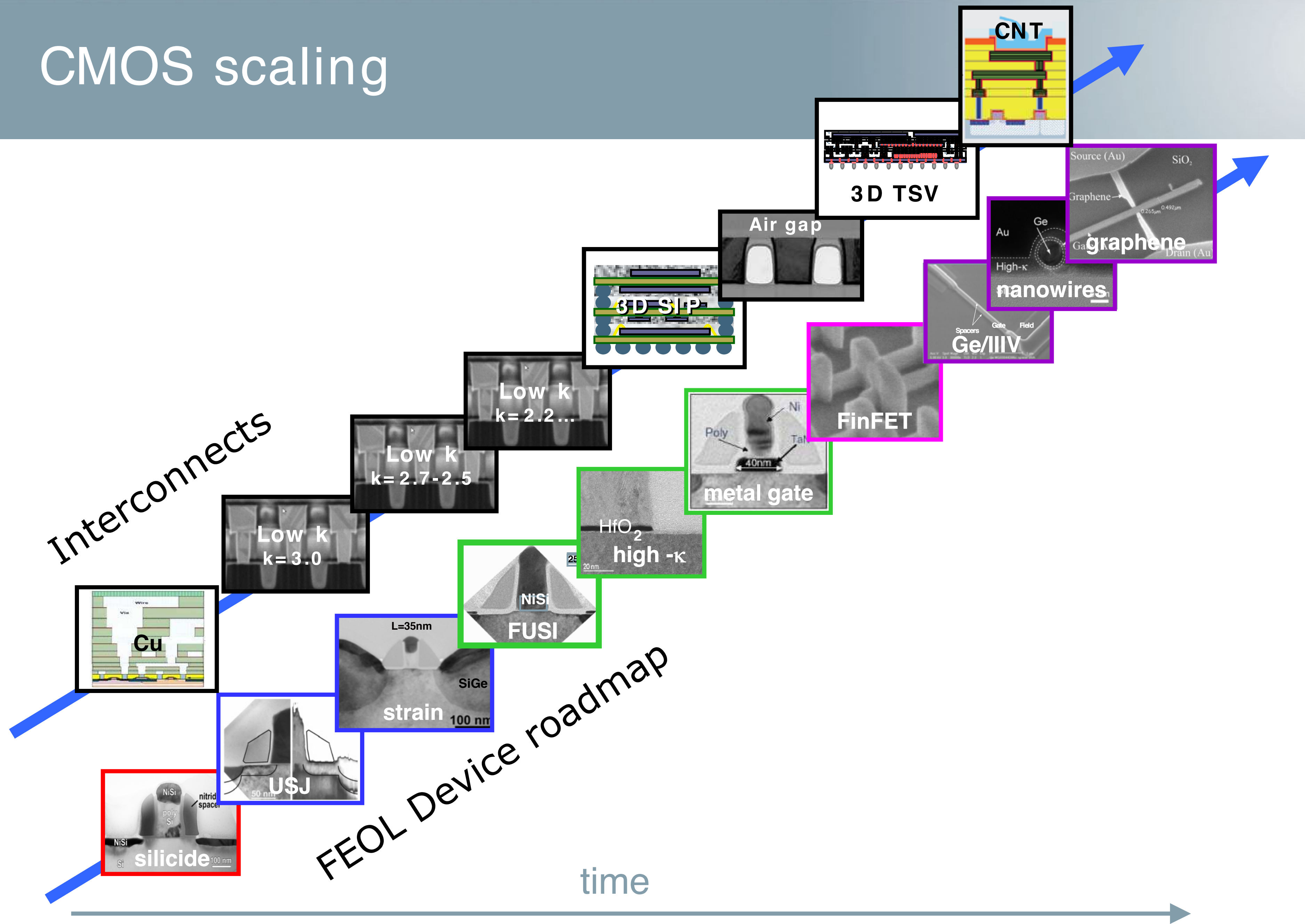
CMOS scaling roadmap



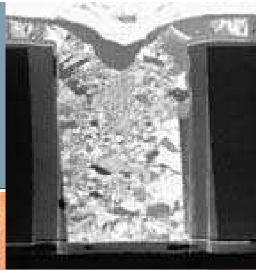
IMEC FEOL Research Topics & Roadmap

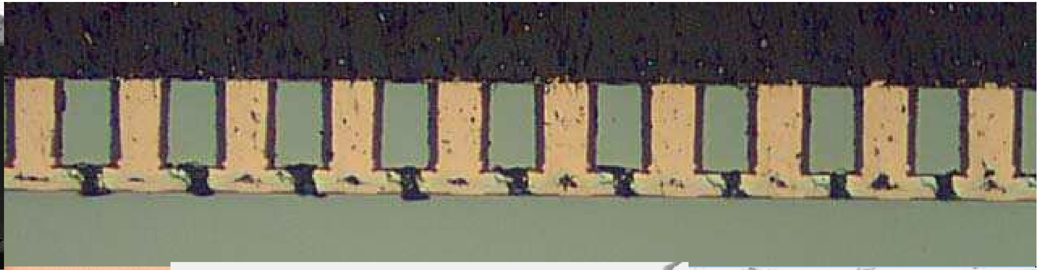


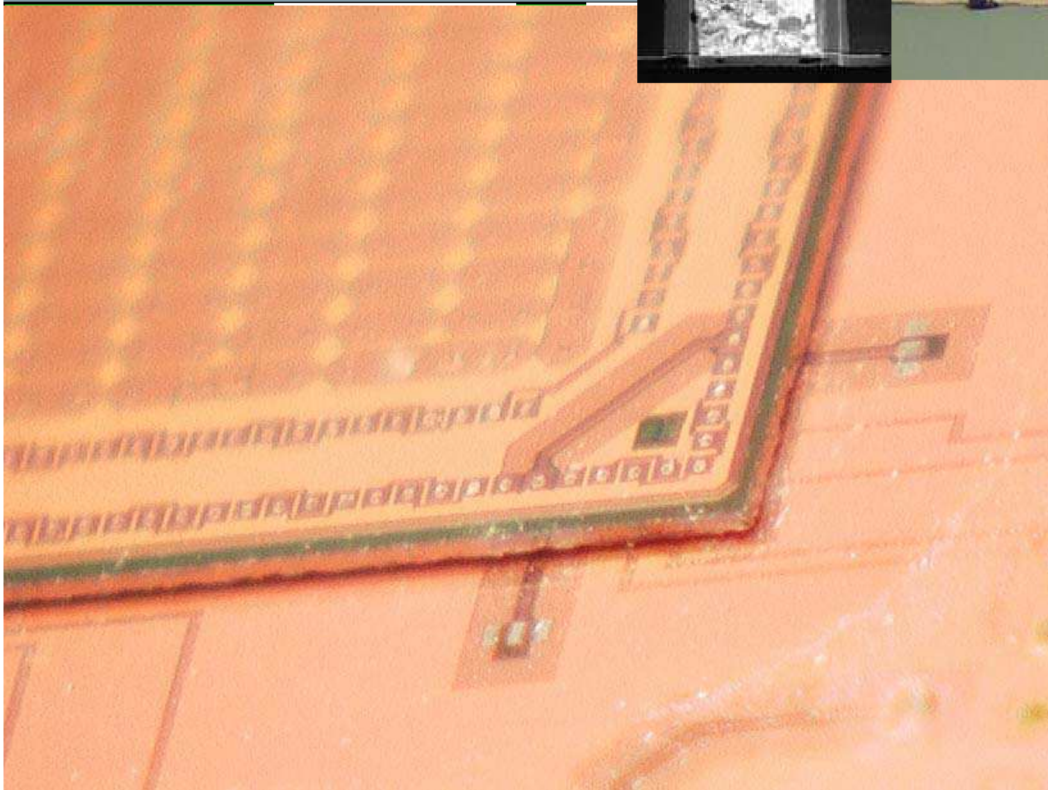
CMOS scaling

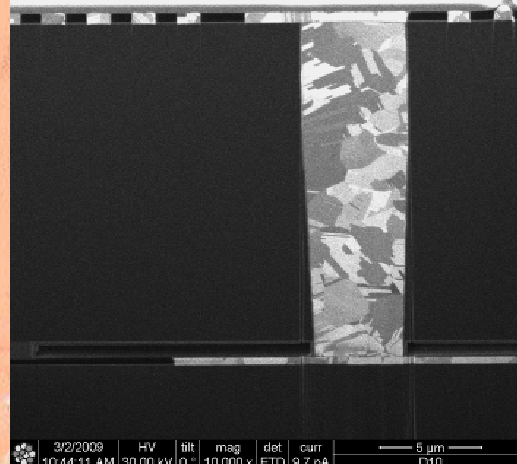


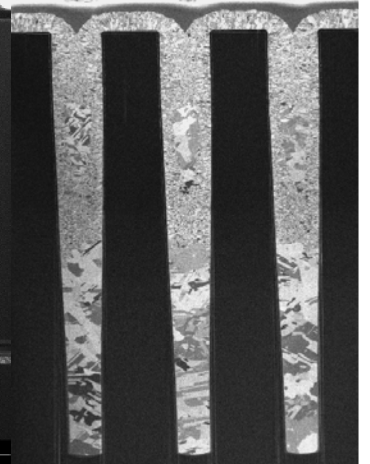
3D @ IMEC

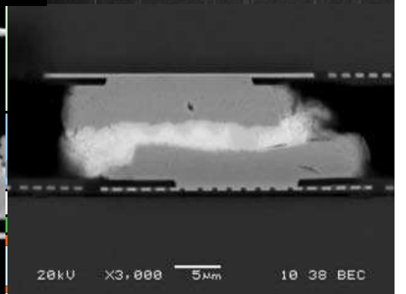


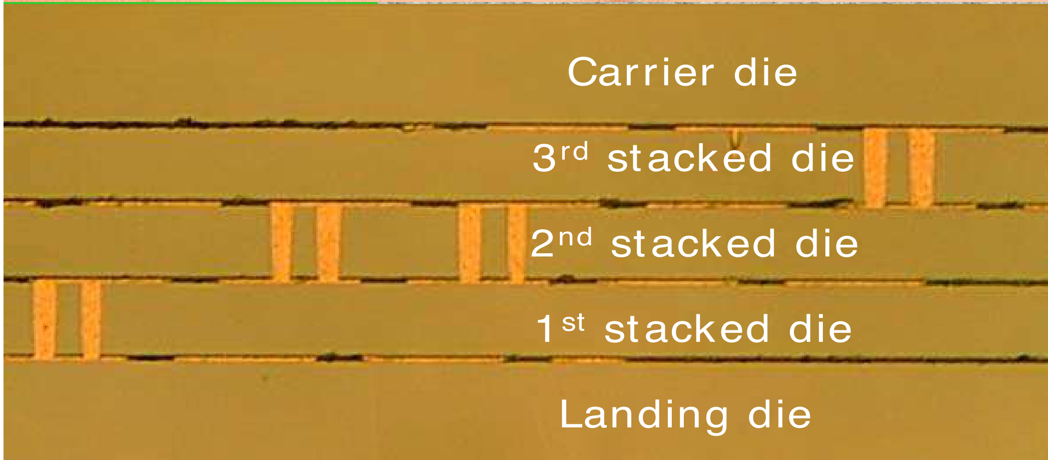


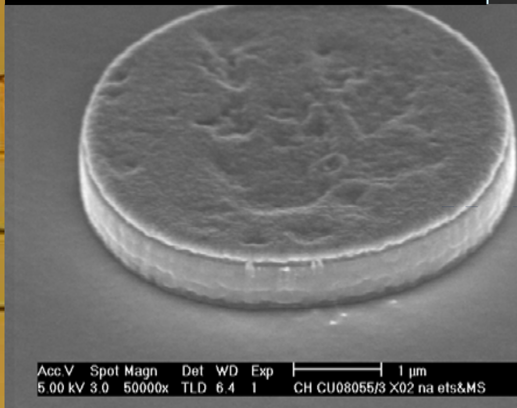


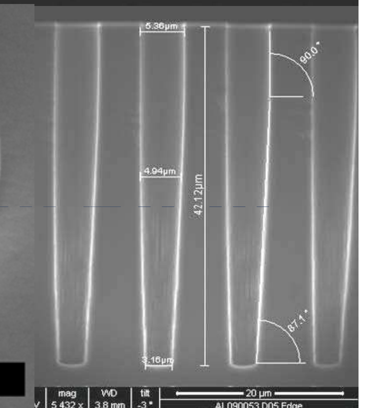






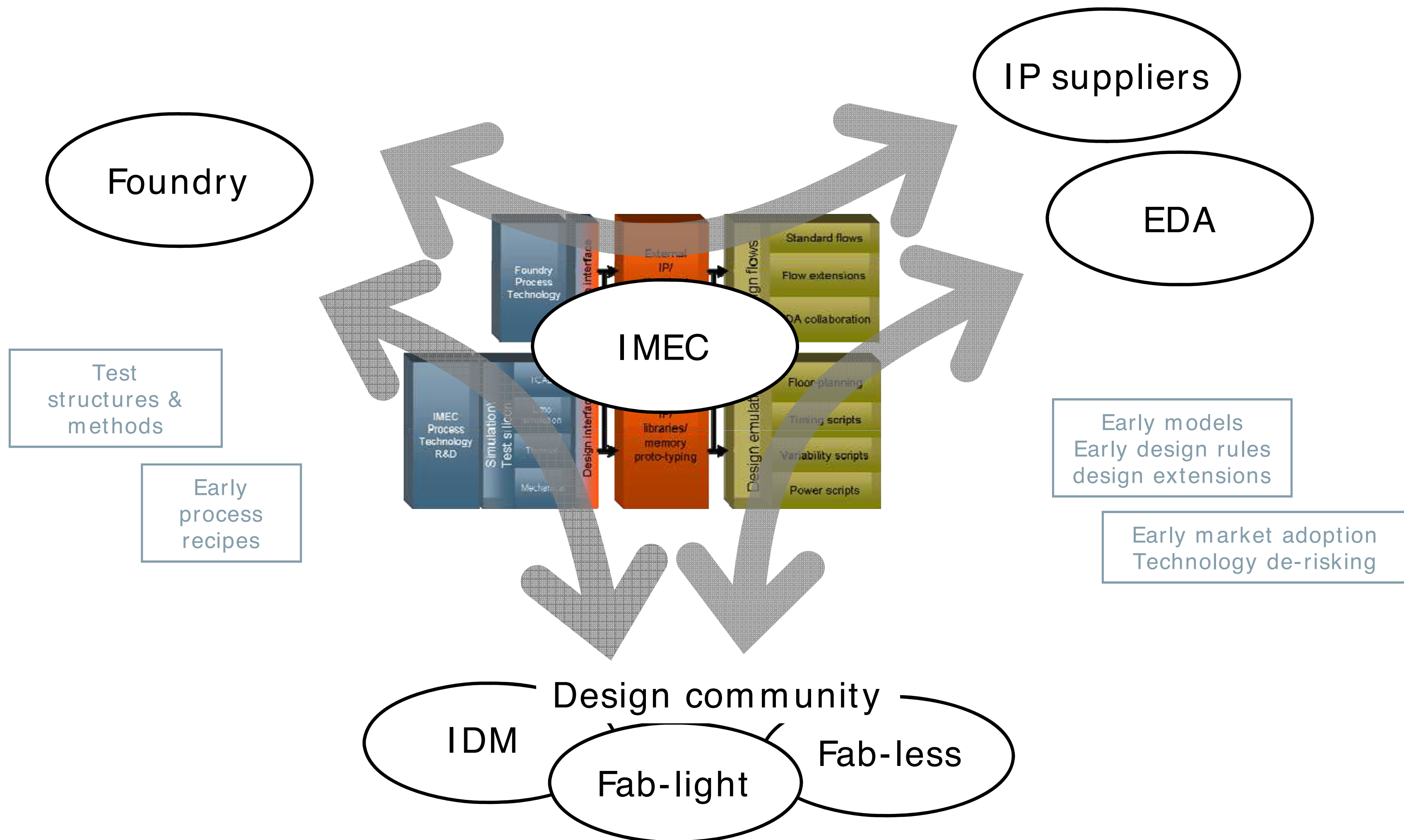




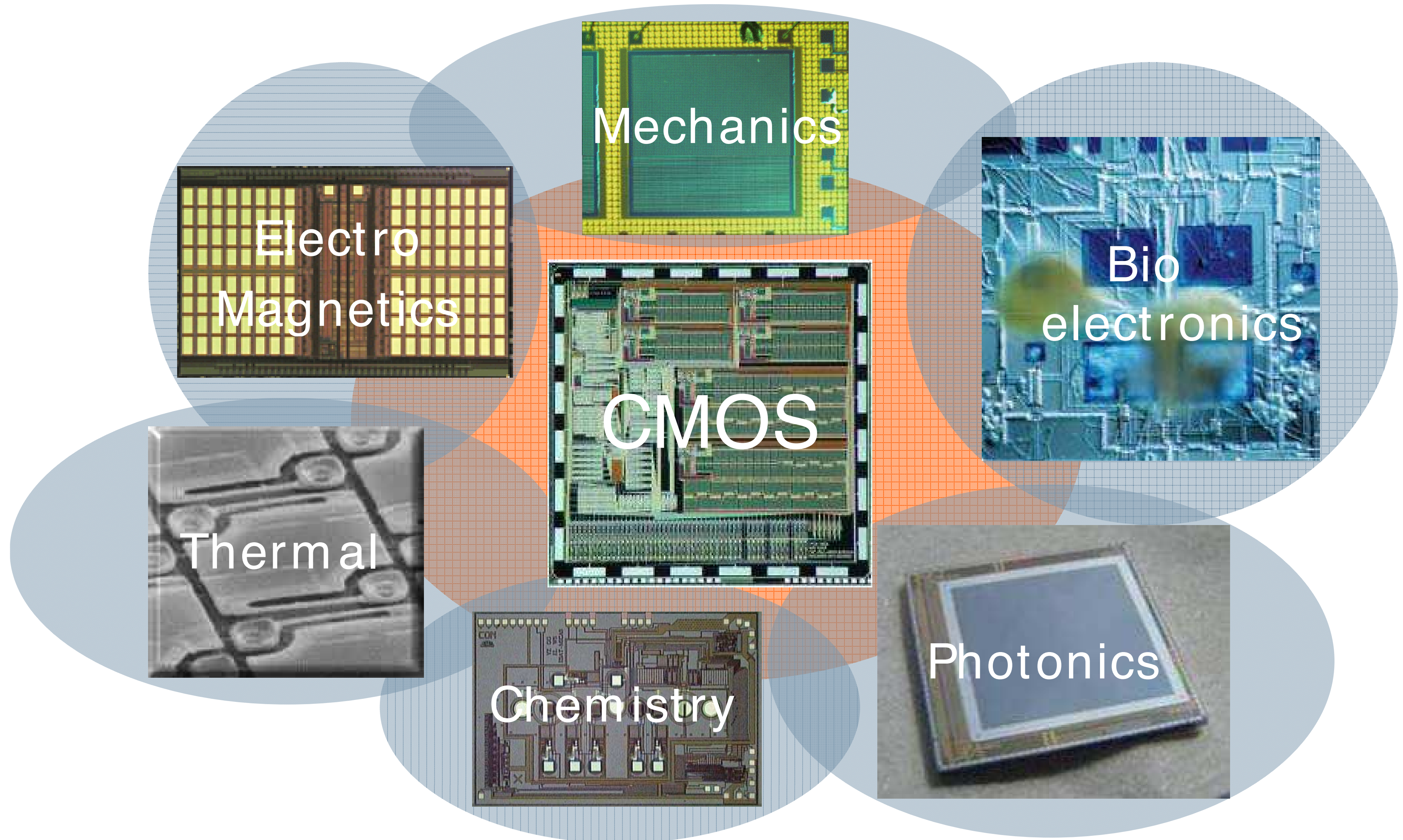


Growing interest in ECO-system

(with dedicated “INSITE” program for system houses)



Technology options on advanced CMOS: sensors & actuators, connectivity…



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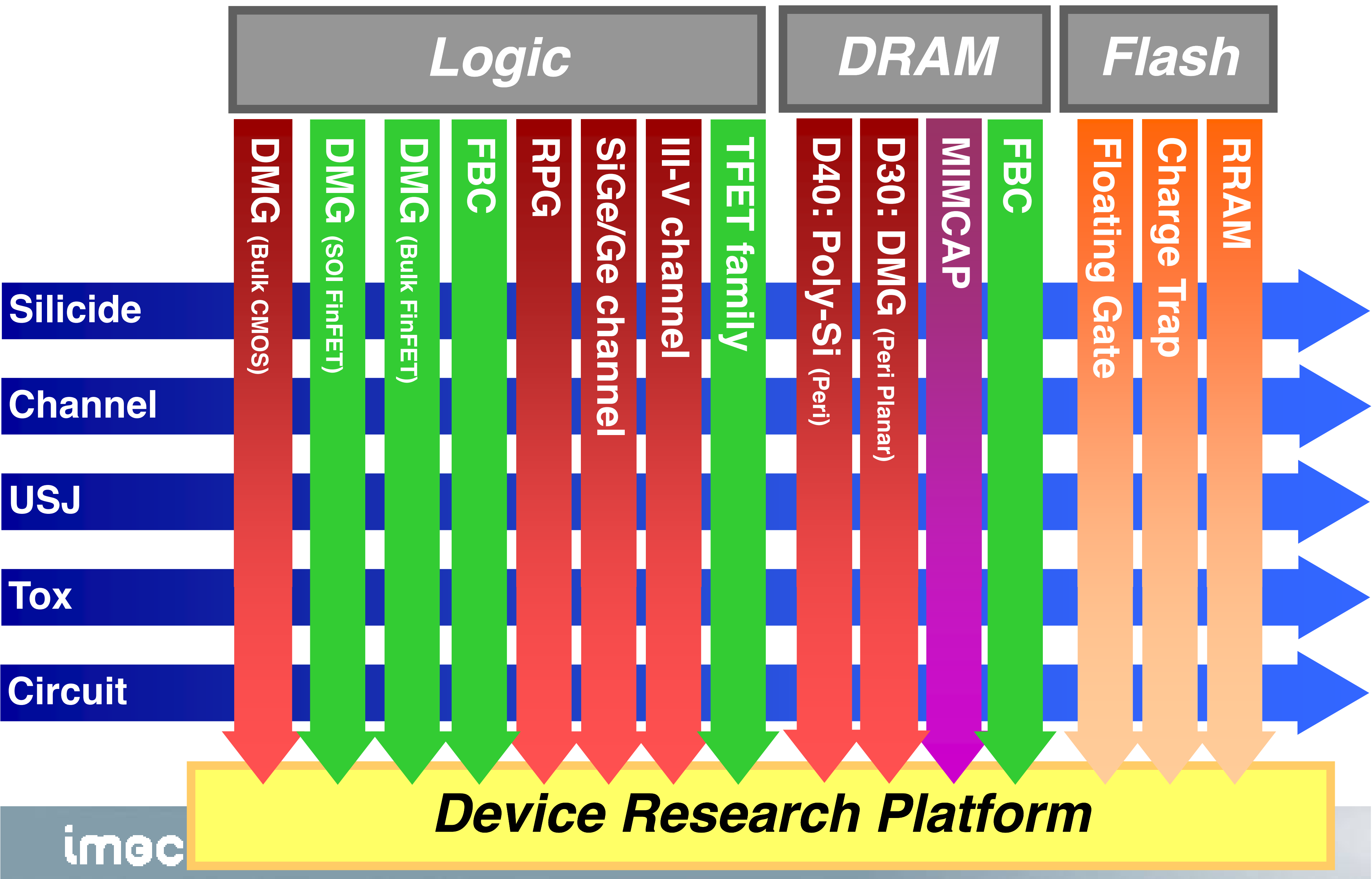
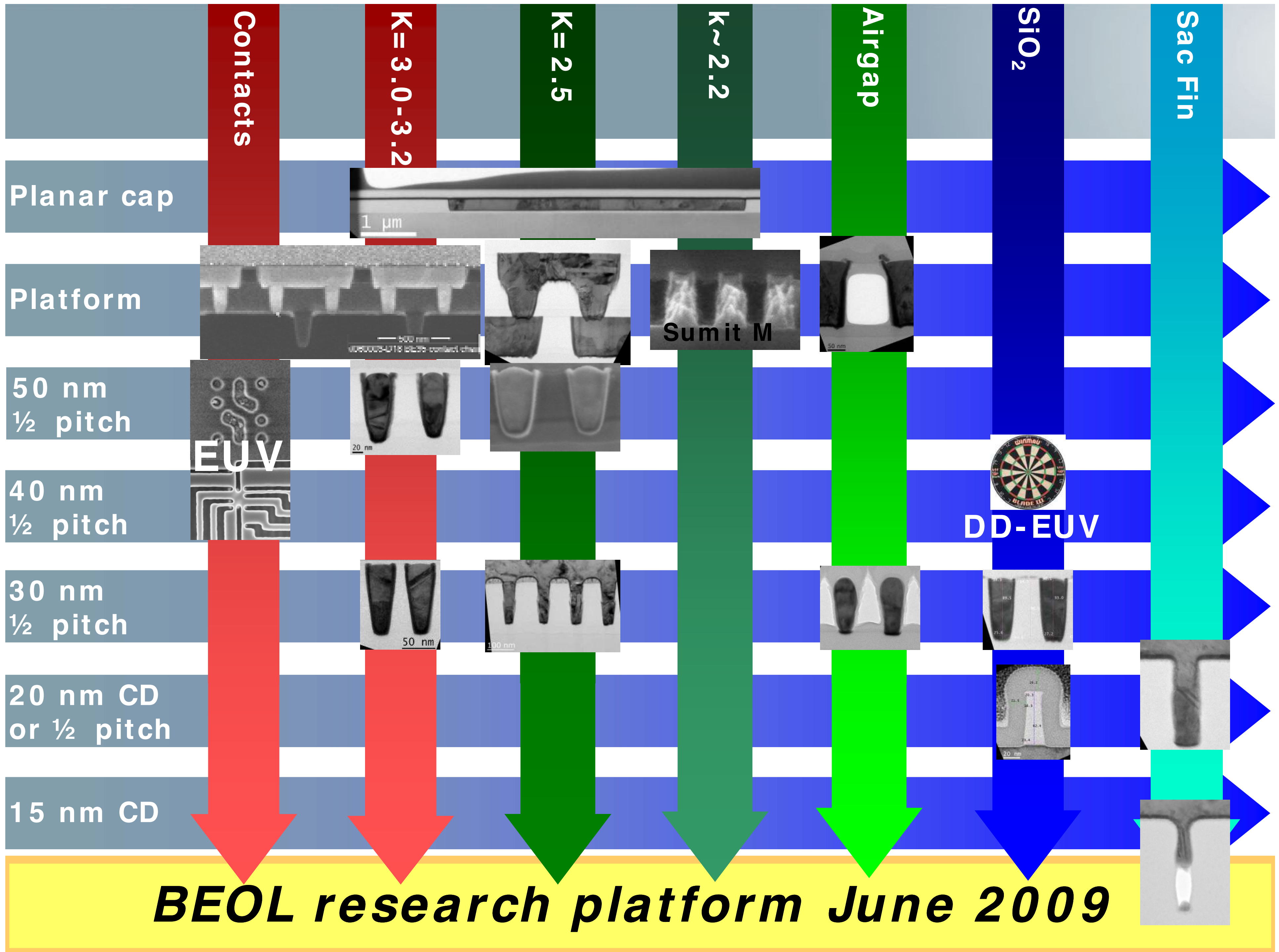
imec
Years of Making
Technology Fly

200/300mm Pilot Line
Routes optimized for:
-Flexibility (materials, devices)
-Cycle time
-Quality of Processing

FEOL Device Strategy Map





Contacts
K= 3.0-3.2
K= 2.5
k~ 2.2
Airgap
SiO2
Sac Fin
Planar cap
Platform
50 nm
½ pitch
40 nm
½ pitch
30 nm
½ pitch
20 nm CD
or ½ pitch
15 nm CD
EUV
Sumit M
DD-EUV
1 µm
50 nm
BEOL research platform June 2009

Increasing link Technology-design