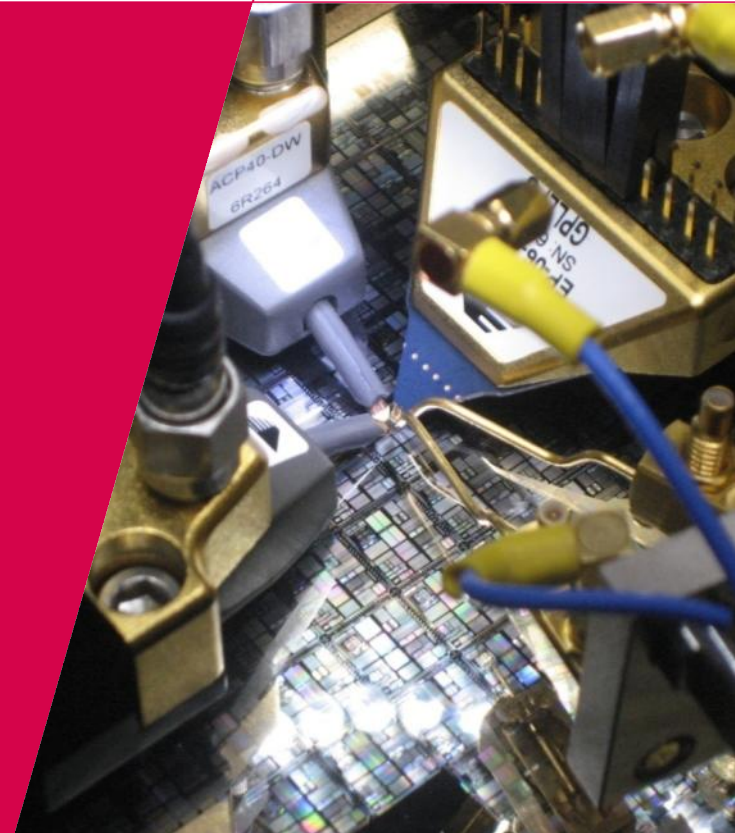


MSM: An Introduction

Peter Baltus

Mixed-signal Microelectronics group
FLUX floor 7



TU / **e**

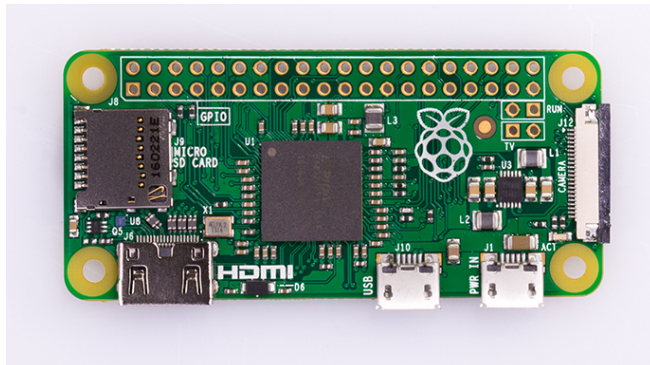
Technische Universiteit
Eindhoven
University of Technology

<http://www.tue.nl/msm>

Where innovation starts

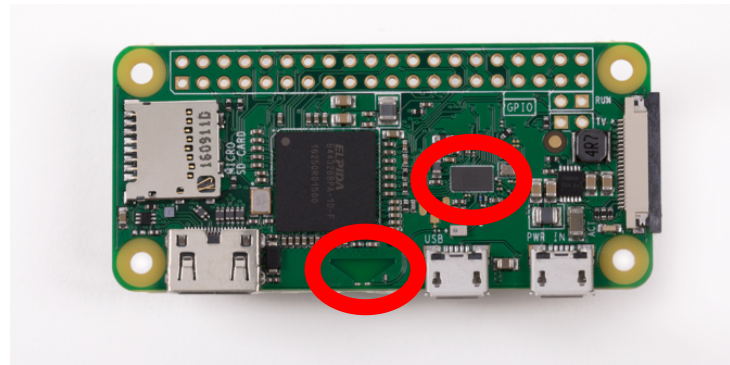
Equal Rights in Electronics?

Spot the differences:



€5

~ 5 10^9 transistors



€10

~ 5 10^9 transistors

Not all transistors are equal:

- Cost
- Value

Economics of Integrated Electronics

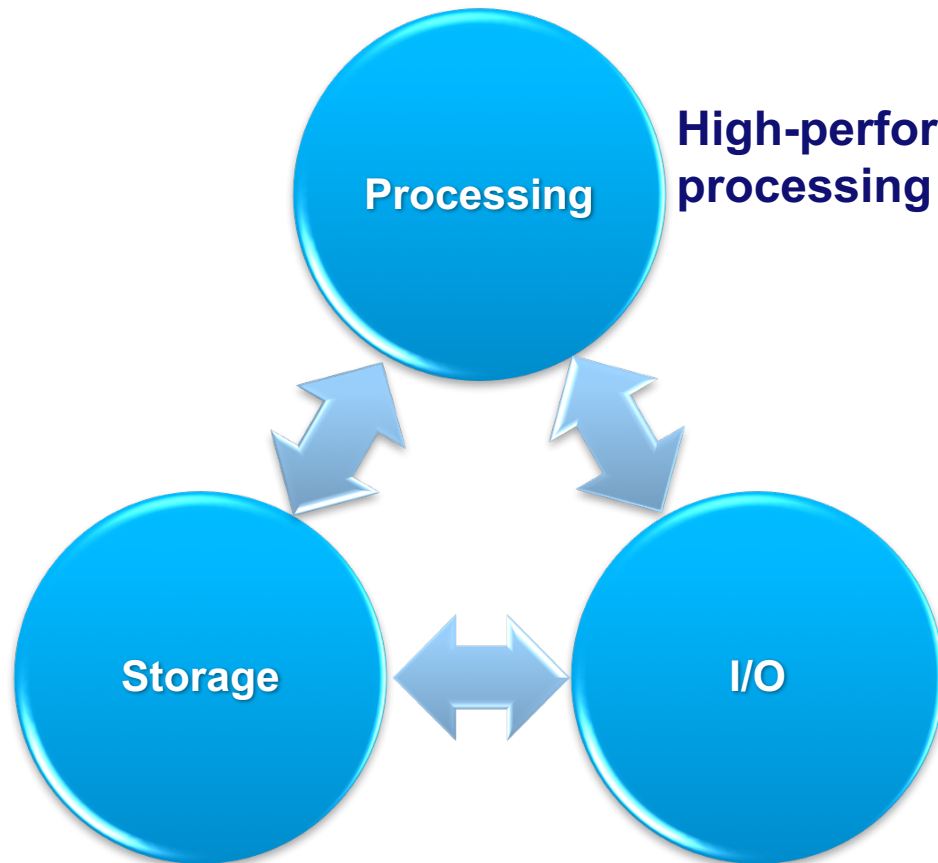
Basics:

- Investment: >> €10M Production
- Cost: << €0.0000001/transistor
- High volumes: >> 10M#/year

Technologies:

- Digital (+software): large margins to enable complexity
- Analog/RF/Mixed: small margins to enable performance

Where is it used?



**High-performance
processing**

And especially: I/O

- **Interface to real (analog) world**
- **High observed performance impact**

**High-performance
storage**

The Joys of Analog/RF/Mixed Electronics



High speed
High power efficiency
High resolution

**@Edge of
technology**

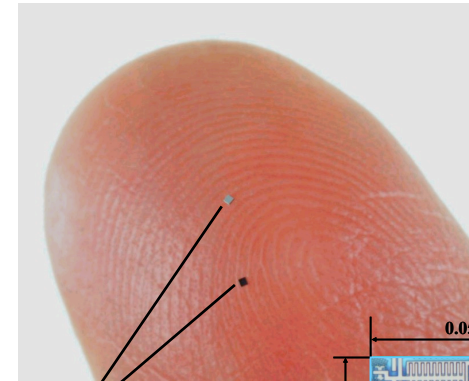
**Creativity =
Mandatory**

**Verification
in Reality**

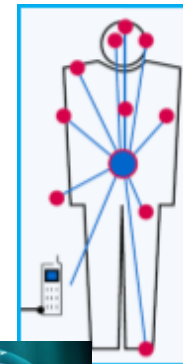
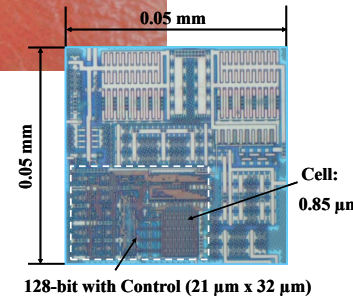
Fun!

**In High
Demand**

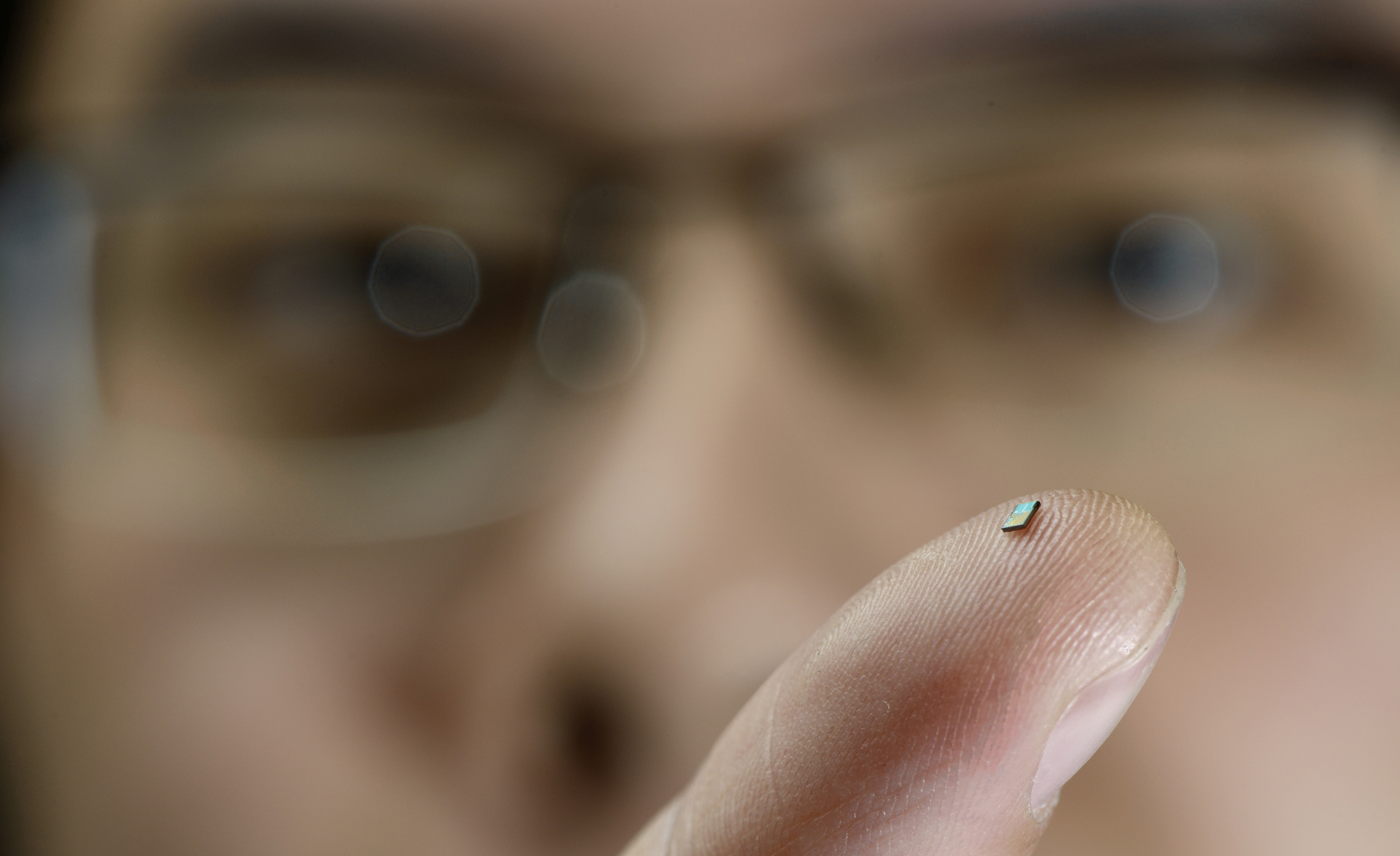
Electronics is Everywhere!



RFID chips



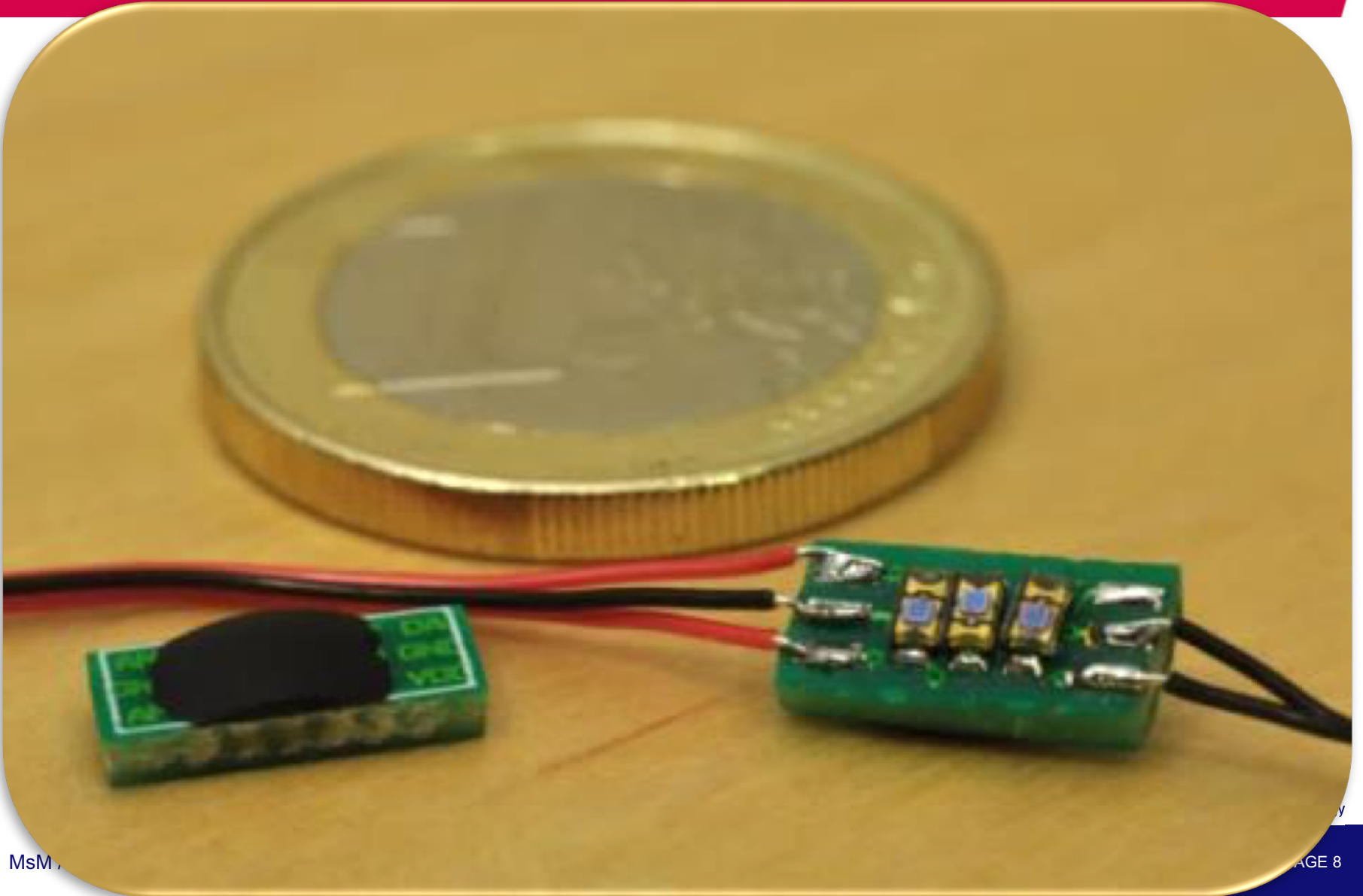
Smallest wireless temp sensor in the world



Flexible (“plastic”) electronics



ECG Data acquisition



Staff members (FLUX, floor 7)



Peter Baltus
Chair



Arthur van Roermund
General



Marion Matters
General RF + THz



Hao Gao
RF Mm-wave



Dusan Milosevic
RF power amps

RF



Georgi Radulov
AD/DA



Pieter Harpe
AD/medical

ADDA



Eugenio Cantatore
Emerging technology
& applications



Sahel Abdinia
Flexible Electronics

Emerging Tech



Rainier van Dommele
Lab, CAD, ...



Margot van den Heuvel
secretary

TU/e Technische Universiteit
Eindhoven
University of Technology

Parttime professors



Kostas Doris, NXP
Data converters



Lucien Breems (NXP)
Sigma-delta mod.



Domine Leenaerts
RF, mmwave (NXP)

NXP



Heinrich Wörtche (INCAS3)
Sensor systems

Phoenix

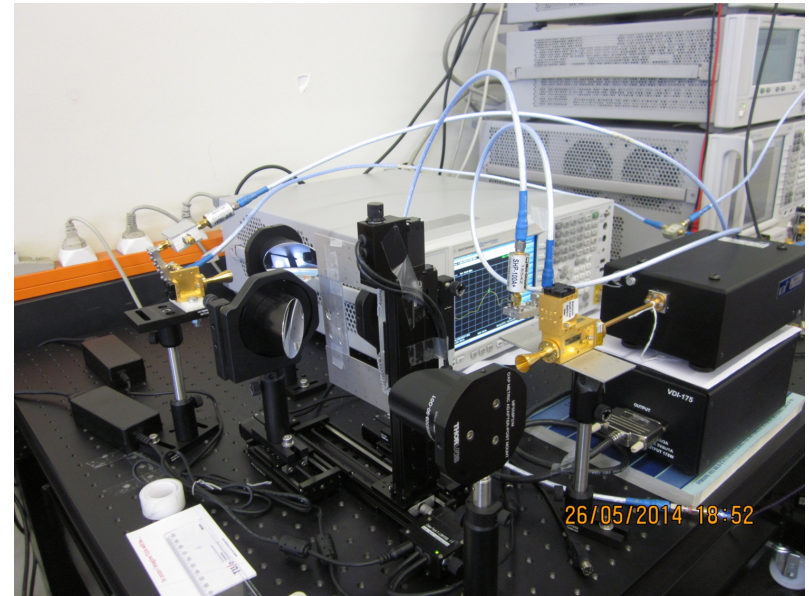


Erik Fledderus
RF networks (SURF)

Surf

Welcome: Fluxcursion June 1st, 14:00-17:00

- Flux 7: presentations/discussions
- Flux 8: labs, demonstrations



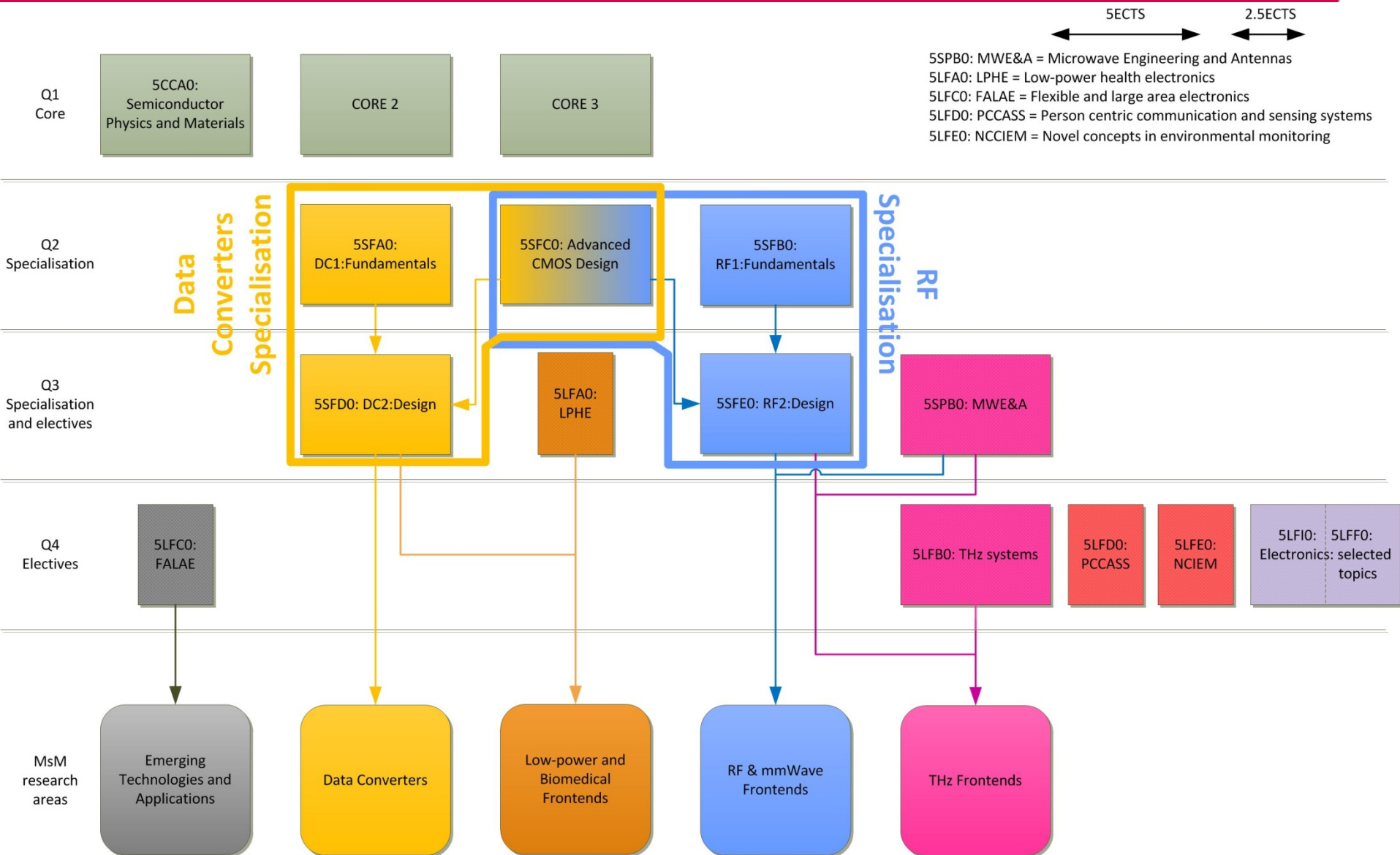
More info: [Promo market](#)

The End

Thanks for your attendance & attention!

Feel free to ask any questions!

MsM courses and research areas



Technology Advances Since 1978

