

BASICS OF PHOTONICS AND ELECTRONICS FOR LIFE SCIENTIST @IMEC

WHAT A LIFE SCIENTIST SHOULD KNOW ABOUT PHOTONICS AND ELECTRONICS

Get a basic understanding on light and electronics to understand integrated sensors and circuits

The goal of this 'basics' course is to introduce a number of concepts to life scientists,

After following this course:

- ▶ You have an understanding of working principles behind sensor and amplifier techniques.
- ▶ You are aware of the possibilities and limitations.
- ▶ You are introduced in the basic ideas required to successfully communicate with your colleague engineers.



When: 24 to 26 May 2016!

Where: imec Leuven

Cost: free of charge for PhD and PostDocs!

Register on imecacademy: www.imecacademy.be

Day 1: Photonics

- ▶ The very basics of light and light propagation including such concepts as polarization, interference, scattering, dispersion, diffraction and waveguiding.
- ▶ Light-matter interaction, including light emission and amplification, light detection, light modulation with examples of various state-of-the-art component technologies.
- ▶ The integration of photonic functions on a chip, an overview of photonics integration technology platforms and some emphasis on silicon photonics. This serves as an introduction to photonic lab-on-chip approaches.

Day 2: Basics of electronic COMPONENTS

- ▶ Linear components (resistors, capacitors and inductors)
- ▶ Non-linear components (diodes, transistor)

Day 3: Basics of electronic CIRCUITS

- ▶ Amplifiers (stability, offset, noise)
- ▶ OpAmp circuits
- ▶ A/D, D/A convertors
- ▶ The typical signal processing chain