



FP7 - 224312

HELIOS

pHotonics ELelectronics functional
Integration on CMOS

Silicon photonics course

prepared by the HELIOS consortium

Download the course on <http://www.helios-project.eu/Download/Silicon-photonics-course>

This course has been prepared within the HELIOS project “pHotonics ELelectronics functional Integration on CMOS” funded by EC within the 7th framework program in the ICT priority. The project is aimed at making silicon photonics accessible to a broad circle of users. The project includes the development of essential building blocks and, beyond, the combination and packaging of these building blocks for the demonstration of complex functions, addressing a variety of industrial needs. More information at www.helios-project.eu

The course aims to introduce and to prepare to the silicon photonics technology. It is available free on the internet in order to widespread the information that silicon photonics is a viable technology for a huge variety of different applications. The principal targets are students, researchers or engineers who are willing to get introduced to the field.

This course is prepared for a semester on silicon photonics at the graduate/PhD student level. The course is free and will be regularly updated on an yearly basis. The length of the course is about 21 hours. It can be taught by an instructor in a class as well as read by a single student at home. It can be used in its totality or some extracts. We appreciate any comment at pavesi@science.unitn.it or <http://www.heliosproject.eu/Contact-us>

Outline of the course:

- Ch 1 Introduction Lorenzo Pavesi
- Ch 2 Silicon Photonics Waveguides Graham Reed et al.
- Ch 3 Coupling to Small Silicon Waveguides Wim Bogaerts
- Ch 4 Passive Silicon Photonic Devices Dries Van Thourhout
- Ch 5 Silicon photonics resonant structures Pierre Viktorovitch
- Ch 6 Optical Modulators in Silicon Photonic Circuits Delphine Marris-Morini et al.
- Ch 7 Optical sources in Silicon Photonics Circuits Blas Garrido et al.
- Ch 8 Hybrid integration of III-V on silicon Gunther Roelkens
- Ch 9 Optical Detection Technologies for Silicon Photonics Laurent Vivien et al.
- Ch 10 Integration Jean Marc Fedeli
- Ch 11 Packaging Lars Zimmerman
- Ch 12 Silicon Photonic Applications Stéphane Formont