

SEASONAL SCHOOL "PHOTONIC TECHNOLOGIES FOR SENSING APPLICATIONS" 2022/2023

May 8th – May 12th - 2023

Classroom Training			
Teaching	Teaching Methodology	Impegno orario (relativo all'attività didattica assistita)	University Credits (CFU)
Introduction to the Seasonal School	Frontal lesson	2	0.2
Basic of optical components	Frontal lessons + Laboratory Demo	8	0.8
Optical fiber sensor systems	Frontal lessons + Laboratory Demo	12	1,2
Imaging sensors for industrial applications	Frontal lessons + Laboratory Demo	8	0.8
Basics of photonic integration	Frontal lessons + Laboratory Demo	4	0.4
Photonic integration for sensing applications	Frontal lessons + Laboratory Demo	4	0,4
1 Industrial Seminar	Frontal Lesson (Rete Ferroviaria Italiana)	2	0,2

- Introduction to the Seasonal School (Fabrizio Di Pasquale, 2 hours)
- Basic of optical components (Claudio Oton, 8 hours)
- Optical fiber sensor systems (Fabrizio Di Pasquale 8 hours, Yonas Muanenda 4 hours)
- Imaging sensors for industrial applications (Carlo Alberto Avizzano, 8 hours)
- Basics of photonic integration (Stefano Faralli 2 hours, Claudio Oton 2 hours)
- Photonic integration for sensing (Claudio Oton 2 hours, Antonella Bogoni 2 hours)

Industrial Seminar (2 hours, Online): Ing. Mirko Ermini, Ing. Giovanniluca De Vita, RFI S.p.A., *"Photonic sensors in railway applications"*

SCHOOL PROGRAM

Monday May 8th

8 May 09:00-11:00 **INTRODUCTION TO THE SEASONAL SCHOOL "PHOTONIC TECHNOLOGIES FOR SENSING APPLICATIONS"**, F. Di Pasquale (Sede Centrale, AULA 5)

8 May 11:00-13:00 Basic of Optical Components (Optical Fibers), C. Oton (Sede Centrale, AULA 5)

8 May 14:30-16:30 Basic of Imaging Sensors (HW), C.A. Avizzano (Sede Centrale, AULA 5)

8 May 16:30-18:30 Basic of Optical Components (Passive Optical Components), C. Oton (Sede Centrale, AULA 5)

WELCOME COCKTAIL (Sede Centrale) 19:00

Tuesday May 9th

9 May 09:00-11:00 Basic of Optical Components (Optical Sources), C. Oton (AULA BLUE TECIP/IIM)

9 May 11:00-13:00 Basic of Imaging Sensors (SW), C.A. Avizzano (AULA BLUE TECIP/IIM)

9 May 14:30-16:30 Basic of Optical Components (Detectors), C. Oton (AULA BLUE TECIP/IIM)

9 May 16:30-18:30 Imaging Sensors for Industrial Applications 1, C.A. Avizzano (AULA BLUE TECIP/IIM)

Wednesday May 10th

10 May 9:00-11:00 Optical Fiber Sensor Systems (Basic of Optical Fiber Sensors), F. Di Pasquale (AULA BLUE TECIP/IIM)

10 May 11:00-13:00 Basic of Photonic Integration, S. Faralli (AULA BLUE TECIP/IIM)

10 May 14:30-16:30 Optical Fiber Sensor Systems (Fiber Bragg Grating Sensors), F. Di Pasquale (AULA BLUE TECIP/IIM)

16:00 -16:30: DEMO FBG, Scrittura FBG femtolaser, Interrogazione FBG (Microoptics, Epsilon Optics)

10 May 16:30-18:30 Imaging Sensors for Industrial Applications 2, C.A. Avizzano (AULA BLUE TECIP/IIM)

Thursday May 11th

11 May 09:00-11:00 Optical Fiber Sensor Systems (Distributed Optical Fiber Sensing), F. Di Pasquale (AULA BLUE TECIP/IIM)

11 May 11:00-13:00 Simulations of Photonic Integrated Circuits, C. Oton (AULA BLUE TECIP/IIM)

11 May 14:30-16:30 Optical Fiber Sensor Systems (Advanced and Hybrid Distributed Optical Fiber Sensing), F. Di Pasquale (AULA BLUE TECIP/IIM)

16:00 -16:30: DEMO RAMAN DTS YOKOGAWA, DEMO SISTEMA IBRIDO RDTS/FBG per applicazioni ferroviarie

11 May 16:30-18:30 Optical Fiber Sensor Systems (Distributed Acoustic Sensing, part 1), Y. Muanenda (AULA BLUE TECIP/IIM)

Friday May 12^h

12 May 09:00-11:00 Optical Fiber Sensor Systems (Distributed Acoustic Sensing, part 2), Y. Muanenda (Sede Centrale AULA 5)

12 May 11:00-13:00 **INDUSTRIAL SEMINAR (Ing. Mirko Ermini, Ing. Giovanniluca De Vita, RFI S.p.A.)**
"Photonic sensors in railway applications", (Sede Centrale AULA 5)

12 May 14:30-16:30 Photonic Integration for Sensing Applications: LIDAR, A. Bogoni (Sede Centrale AULA 5)

12 May 16:30-18:30 Photonic Integration for Sensing Applications: FBG interrogators and biochemical sensors, C. Oton (Sede Centrale AULA 5)