



3-day course

TeraHertz: New opportunities for industry

How the TeraHertz revolution impacts your business

February 11-13, 2013

Target audience

R&D managers, engineers and scientists seeking a comprehensive update on TeraHertz technologies and applications, a disruptively evolving field.

A general background in science & technology is sufficient.

Dates and schedule

- Monday, February 11, 2013, 1.30 pm to 6 pm
- Tuesday, February 12, 2013, 9 am to 6 pm
- Wednesday, February 13, 2013, 9 am to 1 pm

Certification

A certificate of participation will be delivered at the end of the course.

Course venue

UNIL-EPFL campus,
Lausanne, Switzerland

Organization

- Nanostructured Materials Physics Laboratory (LPMN), Institute of Condensed Matter Physics (ICMP), School of Basic Sciences (FSB), Ecole Polytechnique Fédérale de Lausanne (EPFL)

In collaboration with

- SWISSto12 SA, a company issued from the EPFL Science Park

Overview

TeraHertz (THz), the frequencies between electronics and optics, was until recently the last unexploited part of the electromagnetic spectrum. The harnessing of THz-based technologies has the potential of impacting globally a vast number of industries, like both electronics in the 70's and optics in the 80's did.

THz applications span over a wide array of fields, including:

- Quality Control and Non-destructive testing
- Surface analysis
- Security
- Chemical and Bio-Medical analysis
- Telecommunications

Filling the Terahertz "gap" has led to unprecedented creativity in the development and commercialization of TeraHertz sources, transmission components and detectors.

This course is a unique opportunity to network with specialists, converge know-how, and scout for innovative applications.

Objectives

- Learn about the latest TeraHertz technologies and their market potential
- Discover examples of TeraHertz applications and the corresponding industrial opportunities
- Network with specialists in this emerging field

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Register at Formation Continue UNIL-EPFL.

Registration form available at www.formation-continue-unil-epfl.ch/thz

Course fee

1200.- Swiss Francs (includes course material and refreshments)

Limited places available.

Instructors include :

- **Dr. Jeffrey Hesler**,
CTO, Virginia Diodes, Inc., USA
- **Dr. Frank Engelke**,
Head Probe Development, Bruker BioSpin GmbH, Germany
- **Prof. Tadao Nagatsuma**,
Department of Systems Innovation, Osaka University, Japan
- **Prof. X.-C. Zhang**,
M. Parker Givens Professor of Optics, Director of the Institute of Optics, University of Rochester, USA
- **Dr. Jean-François Lampin**,
IEMN, Institute of Electronics Microelectronics and Nanotechnology, Lille, France
- **Dr. Philip Taday**,
Application Scientist, TeraView Ltd, Cambridge, UK
- **Dr. Richard Dobbs**,
SR Engineer MMW systems, CPI, Communication & Power Industries, Canada
- **Prof. Jérôme Faist**,
ETH Zurich, Switzerland, Founder of ALPES LASER SA
- **Dr. Oleg Mitrofanov**,
Department of Electronic & Electrical Engineering, University College London (UCL), UK
- **Dr. Stefano Alberti**,
Plasma Physics Research Center, CRPP, EPFL, Switzerland



Steering committee

- **Prof. Jean-Philippe Ansermet**, *School of Basic Sciences, ICMP, EPFL*
- **Dr. Alessandro Macor**, *SWISSto12 SA*
- **Emile de Rijck**, *SWISSto12 SA*

Topics

THz: SOURCE, TRANSMISSION, DETECTION

- THz Sources based on: Solid State, Gyrotron, Extended Interaction Klystron (EIK), Quantum Cascade Laser (QCL)
- THz Pulses: Generation, Detection
- THz Transmission: Waveguides, Antennas, others
- THz Communication Technologies

THz : POSSIBLE INDUSTRIAL APPLICATIONS

- Inspection & Security
- Non-destructive Testing & Evaluation
- Communication
- Medical & Analysis
- Pharmaceutical
- Time-domain Spectroscopy



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