

2022

organized by  
labex  $\Sigma$ -LIM

# TECH DAYS

BRINGING A NEW LIGHT  
ON PHOTONICS

November 15-17 2022

Limoges

[www.unilim.fr/sigmatech-days](http://www.unilim.fr/sigmatech-days)



# **Σ-TECH DAYS**

# **2022**

The fourth edition of the Σ-Tech Days autumn school will cover the theme **“Bringing a new light on photonics”**. The lecture series will be held from **15<sup>th</sup> to 17<sup>th</sup> November 2022** at Limoges, France at the **“Conseil Départemental de la Haute-Vienne”** (11 Rue François Chénieux, 87000 Limoges)

The Σ-Tech Days school is supported by the LABEX Σ-LIM. The event is intended to gather international experts and provide a snapshot of the academic landscape on a targeted research area. It is also expected to be a forum for the confrontation of ideas and the emergence of new ones.

This year, the scientific program of the school is organized around three topics:

- **Photonics & quantum technology**
- **Advanced materials for laser and non-linear applications**
- **Advanced optical fibers and applications**

# AGENDA

Tuesday Nov. 15<sup>th</sup>

## PHOTONICS & QUANTUM TECHNOLOGY



Wednesday Nov. 16<sup>th</sup>

## ADVANCED MATERIALS FOR LASER AND NON-LINEAR APPLICATIONS

Thursday Nov. 17<sup>th</sup>

## ADVANCED OPTICAL FIBERS AND APPLICATIONS

<p><b>09 – 10 am</b> Welcome &amp; opening speech Rémy Boulesteix &amp; Vincent Couderc (LABEX Σ-Lim, France)</p>	<p><b>09 – 10 am</b> Spectroscopic properties of rare earth and transition ions in solids Richard Moncorgé (CIMAP, Caen, France)</p>	<p><b>09 – 10 am</b> Nanoparticles in optical fibers, oxymoron or next pleonasm Wilfried Blanc (INPHYNI, Nice, France)</p>
<p><b>10 – 10.30 am</b> Coffee break &amp; networking</p>	<p><b>10 – 10.30 am</b> Coffee break &amp; networking</p>	<p><b>10 – 10.30 am</b> Coffee break &amp; networking</p>
<p><b>10.30 am – 11.00 pm</b> introduction &amp; enabling technologies Johan Boulet (Naquidis, Alphanov, Bordeaux, France)</p>	<p><b>10.30 – 11.30 am</b> Crystalline materials for lasers Daniel Rytz (EOT GmbH – Coherent, Idar-Oberstein, Germany)</p>	<p><b>10.30 – 11.30 am</b> Non-conventional glasses and fibers for non-linear optics Frederic Smektala (ICB, Dijon, France)</p>
<p><b>11.00 am – 12.00 pm</b> Cold atom quantum sensors Vincent Ménoret (Naquidis, EXAIL, Bordeaux, France)</p>	<p><b>11.30 am – 12.30 pm</b> Glasses and glass structures for linear and non-linear optics Maria Rita Cicconi (FAU, Erlangen, Germany)</p>	<p><b>11.30 am – 12.30 pm</b> Glophotonics: hollow fibre for non-linear optics, power shifting, time compression and quantum optics Glophotonics (Limoges, France)</p>
<p><b>12.00 – 1.30 pm</b> Lunch</p>	<p><b>12.30 – 02 pm</b> Lunch</p>	<p><b>12.30 – 02 pm</b> Lunch</p>
<p><b>01.30 – 02.15 pm</b> Post-quantum cryptogaphy Philippe Gaborit (Naquidis, XLIM, Limoges, France)</p>	<p><b>02 – 03 pm</b> Titanium doped sapphire for ultra-intense laser chain Kheirreddine Lebbou (ILM, Villeurbanne, France)</p>	<p><b>02 – 03 pm</b> Optical fibers for the generation of supercontinua ultra-wideband neural network approach Christophe Finot (ICB, Dijon, France)</p>
<p><b>02.15 – 03 pm</b> Ultra low noise laser for quantum applications Germain Guiraud (Azurlight Systems, Pessac, France)</p>	<p><b>03 – 04 pm</b> Coffee break, networking &amp; poster session</p>	<p><b>03 – 04 pm</b> Closing speech Rémy Boulesteix &amp; Vincent Couderc (LABEX Σ-Lim, France)</p>
<p><b>03 – 05 pm</b> Coffee break, networking &amp; poster session</p>	<p><b>04 – 06 pm</b> Lab tour IRCER</p>	<p><b>04 – 06 pm</b> Lab tour XLIM</p>
<p><b>07 – 10 pm</b> Cocktail reception</p>		

# AT A GLANCE

The LABEX  $\Sigma$ -LIM “From specific ceramic materials and components to integrated, secured and smart communicating systems” is a joint operational structure between IRCER and XLIM, two mixed research units of the University of Limoges and the CNRS. It is supported by two competitiveness clusters, the European Ceramics Cluster and the ALPHA RLH cluster.

The LABEX  $\Sigma$ -LIM is organized around four flagships:

- Going beyond 5G
- Bringing new light to photonics
- Doing more with less energy
- Advanced diagnosis & therapies for promoting health

The LABEX  $\Sigma$ -LIM aims at strengthening the international position of the University of Limoges as a reference for the **design of advanced ceramics and innovative materials, the development of new electronic and photonic components, and the design of innovative secure communicating systems**. The complementary skills of IRCER and XLIM laboratories, covering the entire chain from **ceramic materials/processes to communication systems and health technologies**, allow the integration of innovative ceramics in new devices that meet the scientific, technological, environmental and societal challenges of today and tomorrow.

# NAQUIDIS

## CENTER

### **From an ‘innovation hub’ combining high-level fundamental research and application development to a ‘start-up studio’ for quantum technology.**

Naquidis is a unique hub where research projects at the highest level are jointly developed with their applications and technological solutions. More concretely, this disruptive innovation hub will bring together internationally renowned scientists and directors in charge of a clearly identified activity in fundamental research or in R&D with industry.

These directors will be programme managers who identify the potential synergies between players in Nouvelle-Aquitaine and what should be done to boost their development. They will have the capacity to launch R&D operations – either by assembling research teams that they head up directly at the host research unit, or by setting up projects financed by Naquidis and developed by other industrial or academic teams in the Region.

