



MARCH 7-8  
Braga - PORTUGAL



IcONT

Internet of NanoThings

**Braga ~ Lund**  
**7-8 March**  
**Braga, Portugal**

Highway of collaboration in *Internet of Things*  
between Braga and Lund

Organization:



Partners:





# IoNT Braga - Lund

## 7-8 March

### Braga, Portugal

## Highway of collaboration in *Internet of Things* between Braga and Lund

The *Internet of Nano Things* (IoNT) is a natural technological expansion of the *Internet of Things* (IoT) to include interconnectivity of nanoscale devices via communication networks. The Internet will expand significantly as nanosensors and nanotechnology-enabled devices are connected to physical objects, including consumer electronics and household appliances that are connected to the Internet for collecting, processing, and sharing of data. This concept will include different combinations of nanotechnology and objects to create Internet of *Nano Things*, IoNT.

The International Iberian Nanotechnology Laboratory (INL), Braga, Portugal, in co-operation with Mobile Heights and Materials Business Center, Lund, Sweden, and jointly with the University of Minho, the Centre for Nanotechnology and Smart Materials (CeNTI) and InvestBraga, Braga, Portugal, are co-organizing a workshop on the IoNT.

The aim of this workshop is to bring together representatives from industry (start-ups, SMEs, and large corporations) and academia from both regions (Lund and North of Portugal) to discuss potential collaboration opportunities that exploit complementarities in S&T expertise.

Lund region is known for outstanding expertise in developing software, in wireless technology and sensors, and in materials and devices for biosensing, while INL has complementary expertise in fabrication and integration of hardware for a broad range of sensors and biosensors. Additional expertise contributed by the partners includes nanostructured materials and micro- and nano-systems at the University of Minho and nanostructured materials, organic and printed smart devices at CeNTI. The mission of InvestBraga is to foster the economic development of the region and to attract foreign investment to Braga.

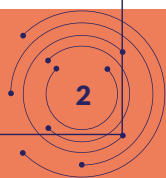
### **The international Iberian Nanotechnology Laboratory (INL) also offers:**

- Custom-built dedicated advanced infrastructure for nanotechnology R&D.
- Capability to test new nanotechnology concepts and their applications in the market.
- Rapid prototyping and support for quickly introducing products to the market.
- Interdisciplinary research team, including biologists, chemists, physicists, engineers.
- International environment: by legal status and via 30 nationalities of researchers.

### **The workshop will cover the following main topics:**

- “Nano-enabled sensors of the future”.
- “System-on-Silicon nanotechnologies”.

[Make your registration by clicking here.](#)





# PROGRAM

## Workshop on nano-enabled technologies for the *Internet of Things*

March, 7<sup>th</sup>

14:00 - Registration

14:30 - **Welcome**  
Lars Montelius (Director-General), INL (Braga)

14:50 - **The S+T+ARTS=STARTS initiative - new forms of innovation for Europe**  
Peter Friess (IoT Project Officer) from the European Commission

15:10 - **Presentation of Mobile Heights**  
Ola Svedin (CEO) from Mobile Heights (Lund)

15:20 - **Presentation of Materials Business Center**  
Lars Tilly (Director) from Materials Business Center (Lund)

### **Nano-enabled sensors of the future**

15:30 - **Smart sensor to assure packaged meat quality**  
Vivek Chaturvedi (Research Engineer) from Innoscentia (Malmö)

15:50 - **Sensors in incontinence products**  
Tautgirdas Ruszgas (Professor in Biomedical Technology) from Malmö University

16:10 - **Remotely sensing and collecting grape vine growth parameters in real time**  
Olle Hydbom (CEO) from AutoIDExpert Scandinavia (Lund)

16:30 - **Graphene nano-ribbons for molecular sensing**  
Mikhail Vasilevskiy (Professor, Department of Physics) from the University of Minho

16:50 - **Internet and IoT in Smart Cities**  
Susana Sargento (Professor, Department of Electronics, Telecommunications and Informatics) from the University of Aveiro

17:10 - COFFEE-BREAK

17:30 - **Breakout Sessions for collaboration opportunities**

18:30 - End of Day 1

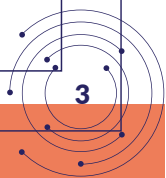
20:00 - Dinner

March, 8<sup>th</sup>

### **Nano-enabled sensors of the future (cont.)**

09:00 - **IoT nanostructured sensor-actuators for hazardous environments integrated onto personal protective equipment**  
João Gomes (R&D Manager, Smart Materials and Systems) from CeNTI

09:20 - **Hetero-Integration of CMOS with carbon nanotubes and MEMS Sensors for a water quality sensing system**  
João Pedro Oliveira (Professor, Faculdade de Ciências e Tecnologia) from UNL





# PROGRAM

## Workshop on nano-enabled technologies for the *Internet of Things*

March, 8<sup>th</sup>

### **System-on-Silicon nanotechnologies**

#### **09:40 - Silicon implementations - The backbone of IoT sensing**

Joachim Rodrigues (Associate Professor, Department of Electrical and Information Technology) from Lund University

#### **10:00 - Integrated sensors and sensor networks for environmental applications**

João Piteira (NANO-ICS Group Leader) from INL

#### **10:20 - Why is connectivity and security important for Nano IoT**

Gerard de Bourbon Ponce de Leon (Principal Chief Evangelist) from Tele2, Sweden

#### **10:40 - COFFEE-BREAK**

#### **11:00 - Magnetoresistive-based smart watt meters networks**

Susana Cardoso (Co-Director) from INESC Microsistemas e Nanotecnologias

#### **11:20 - Nano-enabled sensor activities in RISE Acreo and the recent establishment of the Lund office**

Kristian Storm (Head ICT office) of Acreo (Lund)

#### **11:40 - Wafer-level modular architecture for IoT**

Rui Pedro Silva from NANIUM and Manuel Monteiro from Fraunhofer Portugal

#### **12:00 - IoT & mobility in cities**

André Ferreira (Software Engineer) from Bosch Car Multimedia Portugal, S.A.

### **Transversal topics**

#### **12:20 - The importance of being able to triage errors in real time in Nano IoT**

Gerard de Bourbon Ponce de Leon (Principal Chief Evangelist) from Tele2 (Sweden)

#### **12:40 - Examples of challenges and applications for nanotechnology startups**

Tord Wingren (VP & Site Manager) from Huawei, Board Member at Mobile Heights, Founder & Angel Investor in startups (Lund/Malmö)

#### **13:30 - LUNCH**

#### **14:30 - Ricardo Rio (Mayor of Braga)**

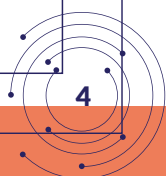
#### **14:50 - Breakout Sessions for collaboration opportunities**

#### **PARALLEL SESSION 1 - Nano-enabled sensors of the future | Moderator: Olle Hydbom**

#### **PARALLEL SESSION 2 - System-on-Silicon nanotechnologies | Moderator: Lars Montelius**

#### **17:00 - Conclusions and Next steps from each parallel session**

#### **18:00 - End of event**





# Useful Information

*This may be your first visit to Braga and we hope one of many. To help you prepare for your visit, we have gathered together some general information.*

## The Venue

The INL – International Iberian Nanotechnology Laboratory, where this workshop will be held, was established to foster interdisciplinary research in Nanotechnology and Nanoscience. INL is an Intergovernmental Institution (IGO) aiming to attract some of the world’s best scientists and engineers. It is the only nanotechnology research organisation worldwide with an international legal status. And offers advanced comprehensive research facilities, where biologists, physicists, materials engineers, chemists, electronic engineers, and pharmacists gather from around the world to work together on interdisciplinary projects.

**INL - International Iberian Nanotechnology Laboratory**  
*Avenida Mestre José Veiga s/n*  
*4715-330 Braga*  
*Portugal*

### by Plane

The principal airport is Sá Carneiro International Airport located 50 kilometres (31 miles) away from Braga, in Porto and about 11 km from the centre of Porto, in one of the country’s most important industrial and trading areas. 14 airlines currently operate out of this airport with flights to 64 destinations. With an annual traffic of more than 6 million passengers, Porto Airport was judged the 3<sup>rd</sup> Best European Airport in 2011 by the ACI (Airport Council International), its 7<sup>th</sup> award in 6 consecutive years.

## Travel to Braga

Visit the website at [www.ana.pt/porto](http://www.ana.pt/porto)

from the Airport to Braga:

>> Bus - you have several options on a daily basis. It’s a non-stop transport and leaves directly from the airport. Cost: €8,00 (one-way) | € 14,00 (return ticket). Duration: approx. 45-50 min.

>> Train: To catch a train to Braga you need to go to the City Centre – Estação de São Bento and Estação da Campanhã. The urban railway leaves every 40/45 min. | Cost: around €4,00(one-way). Duration: approx. 50min to 1h15min.



## Travel to Braga

>> By road: A3 and A11

>> By coach: Rede Expressos [www.rede-expressos.pt](http://www.rede-expressos.pt).

### by Train

Main Railway Station | BRAGA

Braga Main Station offers all those services that make your stay in Braga as comfort as possible. From Braga Main Railway Station you reach the City Center in 3 minutes.

You can find more information at [www.cp.pt](http://www.cp.pt).

### Accommodation

:: [Hotel Mélia - Hotel & Spa](#)

The brand new Meliã Braga offers superior accommodation with excellent transport connections to the city centre. The hotel features a spa with hot tub and sauna, indoor and outdoor pools. It is located just a few meters away from INL - International Iberian Nanotechnology Laboratory.

*Pricing >> Single: €75,00 | Double: €80,00. Please, insert the following code to make your reservation: IONT.*

### Visit Braga

Situated in northern Portugal, Braga is the country's oldest city and a beautiful destination with rich culinary tradition and stunning architecture. This modern city is home to the iconic Bom Jesus Sanctuary, impressive churches and monuments.

Standing 400 metres above the seal level, Bom Jesus do Monte is an imposing sanctuary with a remarkable stairway decorated with statues. This UNESCO World Heritage site is one of the most photographed churches in Portugal.

The Archbishop's Palace consists of three buildings with different styles: Gothic, Mannerist and Baroque. Rich in history, the 12th-century Cathedral of Braga is a building with a Romanesque facade and the tombs of important personalities.

Braga features a variety of interesting museums like Biscainhos Museum and Treasure Museum of the Sé de Braga. Visitors can wander around the vibrant Praça da Republica or relax in one of the traditional cafes.

Porto Airport is about 40km away and has flights to major destinations like Madrid, Frankfurt, Barcelona and Brussels. Booking.com has a great variety of hotels, pensions and hostels in the city of Braga.

## Visit Braga

