

# 1<sup>st</sup> Winter School on Numerical Methods in Acoustics



**Le Mans, France**  
**December 10-14<sup>th</sup> 2018**



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# Forewords

It is our pleasure to welcome you in Le Mans for the first edition of the EAA Winter School on Computational Acoustics. With more than 60 participants coming for all over Europe, this edition promises to be a great occasion to learn about fundamental and applied aspects of computational acoustics. It covers the main numerical methods currently in use in industry and under development in academia, such as Finite Element Methods, Finite-Difference Methods and Boundary Element Methods. The course will include the required theoretical foundation needed to understand the properties of numerical schemes for acoustics.

The courses are taught by leading academics from all over Europe. As it is also important to implement these methods, some practical sessions are also organised. No paper document will be . Links to the electronic documents can be found on the [Winter-School website](#) or in the Program of the present document.

For Le Mans University and its Acoustics Laboratory (LAUM - UMR CNRS 6613), it is a real pleasure to host all of you during these five days. We feel honoured and privileged to you through this exciting program.

We then wish you a pleasant week. Enjoy the Winter School !

**The Local Organisation Committee**

# Practical information

## 2.1 Conference venue

The conference will take place in [Bâtiment IRA](#) on Le Mans University Campus. To join the conference venue from the city center, take tram T1 (direction: "Université"). Leave the tram at stop "Campus-Ribay". Two ways are depicted in Fig. [2.1](#). You can either cross the building "Faculté des Sciences" (red way) or by pass it (blue way).

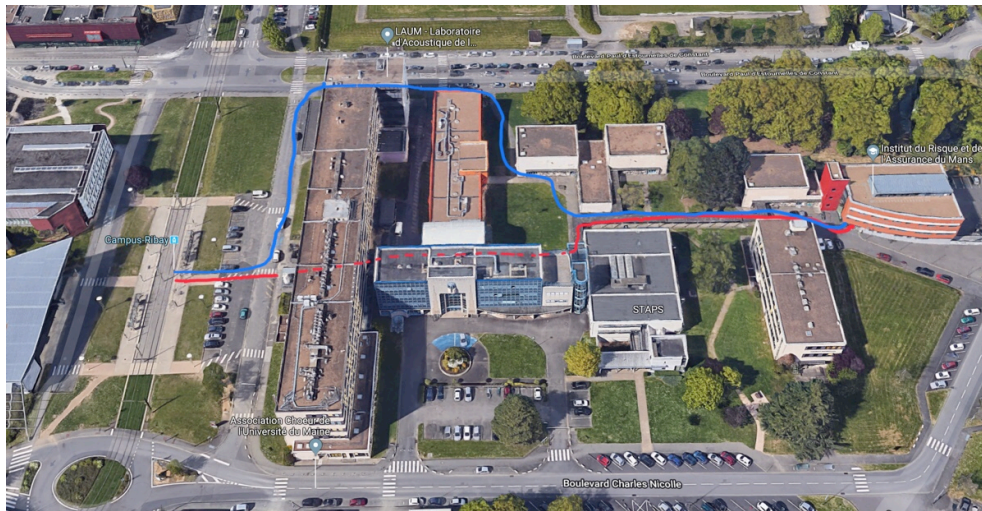


Figure 2.1: IRA Building

## 2.2 Wifi Access

**Login** : univ-libreservice

**Login** : eaawsca

**Password** : uzh623

## 2.3 Visit of Le Mans Circuit

A visit of Le Mans 24 hours circuit is organised. A bus will take us on the campus after the practices and bring us back downtown around 20:00. [More information on the visit](#).



# Program

## Monday:

- 13h30 - 14h: Welcome and introduction
- 14h - 17h30: Ray tracing / geometrical acoustics ([Peter Svensson](#). Trondheim University / Norway)

## Tuesday December 11th: Finite Differences

- 8h30 - 12h: [Finite Difference methods](#) ([C. Bailly](#). Ecole Centrale de Lyon / France)
- 13h30 - 17h: FDTD: applications/practicals
- 17:30: Visit of Le Mans 24 hours circuit

## Wednesday December 12th: The Finite Element Method

- 8h30 - 12h: [Finite-Element Methods](#) ([Jeremy Astley](#). Southampton University-ISVR / UK)
- 13h30 - 17h: FEM: applications/practicals
- 17:30 - 18:15 Finite-Element Applications ([Karim Hamiche](#). Siemens Industry Software)

## Thursday December 13th: The Boundary Element Method

- 8h30 - 12h: Boundary Element Methods ([Peter Juhl](#) University of Southern Denmark and [V. Cutanda Henriquez](#). Technical University of Denmark /

Lyngby )

- 13h30 - 17h: BEM: Applications/practicals

## Friday December 14th: Hot Topics

- 8:30 - 9:15: Spectral Methods ([Maarten Hornikx](#). Technische Universiteit Eindhoven / The Netherlands)
- 9:15 - 10:00 [Nonconforming Finite-Element techniques](#) ([Manfred Kaltenbacher](#). Technische University Wien / Austria )
- 10:30 - 11:15: Multimodal Methods (Simon Félix. LAUM UMR CNRS 6613 / France)
- 11:15 - 12:00 Domain Decomposition Methods (François-Xavier Roux. ON-ERA and UPMC / France)

# List of Participants

**Abdlerhaman Ahmed**

AUC - Egypt

**Abily Thibault**

LAUM - UMR CNRS 6613

**Afyf Amal**

ENSIAS

**Astley Jeremy**

ISVR - Southampton

**Bailly Christophe**

Ecole Centrale de Lyon

**Ballestero Eric**

London South Bank University

**Bériot Hadrien**

Siemens Industry SoftWare

**Billard Robin**

LAUM - UMR CNRS 6613

**Bottois Paul**

LAUM - UMR CNRS 6613

**Briere De La Hosseraye Baltazar**

Technical University of Eindhoven

**Cavalieri Théo**

LAUM UMR CNRS 6613

**Churchill Claire**

TU Wien

**Cormerais Romain**

ESEO

**Cutanda Henriquez Vicente**

Technical University Denmark

**Dabankah Emmanuel Manu**

INSA Lyon - LVA

**Dazel Olivier**

LAUM - UMR CNRS 6613



**De Lucia Riccardo Roberto**

POLITECNICO DI MILANO

**Delétang Anthony**

LAUM - UMR CNRS 6613

**Deng Yuanyuan**

École Centrale de Lyon

**Desjoux Cyril**

LAUM - UMR CNRS 6613

**Durand-Texte Thomas**

LAUM - UMR CNRS 6613

**Ehmen Tobias**

University of Exeter

**Félix Simon**

LAUM - UMR CNRS 6613

**Fratoni Giulia**

University of Bologna

**Fusaro Gioia**

University of Sheffield

**Gabard Gwénaél**

LAUM - UMR CNRS 6613

**Gaborit Mathieu**

LAUM - UMR CNRS 6613

**Garcia Neefjes Erik**

University of Manchester

**Gillot Gautier**

LAUM - UMR CNRS 6613

**Gilvey Ben**

Durham University

**Guennoc Thomas**

LAUM - UMR CNRS 6613

**Hamiche Karim**

Siemens Industry SoftWare

**Hörmeyer Jasmin**

Leibniz Universität Hannover - ISD

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Technical University of Eindhoven

**Juhl Peter**

University Southern Denmark

**Kaltenbacher Manfred**

TU Wien

**Kalunga Ronaldo Dos Anjos Macondo**

LMU-MUNICH

**Kojourimanesh Mohammad**

Technical University of Eindhoven

**Lagny Laure**

LAUM - UMR CNRS 6613

**Langlois Christophe**

Université de Technologie de Compiègne

**Lee Alexander**

HFT Stuttgart

**Long Yuzhu**

LAUM - UMR CNRS 6613

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Leibniz University Hannover - ISD

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Acoustic Technology, DTU Elektro

**Morin - Pauletto Lino**

LAUM - UMR CNRS 6613

**Muraro Fabio**

University of Sheffield

**Parry Jordan**

University of Sheffield

**Pezzoli Mirco**

Politecnico di Milano

**Pulvirenti Giorgio**

LVA - INSA Lyon

**Raybaud Guillaume**

LAUM - UMR CNRS 6613

**Roux François-Xavier**

ONERA

**Rovigatti Anna**

University of Bologna

**Rowbottom Jacob**

Nottingham Trent University

**Santosh Sobin**

LAUM - UMR CNRS 6613

**Saverna Charlotte**

LAUM - UMR CNRS 6613

**Shearer Doug**

London South Bank University

**Sihar Indra**

Eindhoven University of Technology

**Soussi Chaima**

LMSSC, Cnam

**Svensson Peter**

Trondheim University

**Tang Shengyu**

LAUM - UMR CNRS 6613

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Chalmers University of Technology

**Wang Huiqing**

Eindhoven university of Technology

**Weber Antoine**

Institut Jean Le Rond D'Alembert

**Xiao Wuxin**

University of Exeter

**Xu Chunyang**

University College London

**Yang Tingting**

University College London IEDE

**Zhu Guang**

École Centrale de Lyon