UNIVERSITÀ DI TRENTO

Dipartimento di
Ingegneria Civile, Ambientale e Meccanica

IMT SCUOLA ALTI STUDI LUCCA

UNIVERSITY OF CAMBRIDGE

# New Horizons In Structural Mechanics, Elasticity and Homogenization

Lucca, July 28-31, 2025

The field of structural and solid mechanics and homogenization has witnessed exciting advancements in recent years, driven by the possibility of designing materials on the basis of ensembles of structural elements. This event, *New Horizons in Structural Mechanics, Elasticity, and Homogenization*, aims to explore the latest developments in these interconnected fields, shedding light on the cutting-edge techniques and applications shaping the future of engineering and design. Topics will include the role of architected and smart materials, metamaterials, metastructures, and adaptive structures, advancements in nonlinear elasticity, and multiscale homogenization techniques. The event will bring together experts to discuss new theoretical, computational and experimental methods, and the potential of advanced materials in creating more efficient and optimized structures. Participants will gain insights into how these emerging trends are revolutionizing structural systems, enabling innovations in aerospace, civil and mechanical engineering, biomechanics, and beyond. This event offers a unique opportunity to engage with pioneering work at the intersection of mechanics, materials science, and technology, setting the stage for the next generation of engineering solutions.

The event will also be an opportunity to celebrate the 85th birthday of Professor John R. Willis

The program will feature 40 invited lectures (30 minutes for each presentation, including time for questions and answers) delivered by internationally recognized researchers. The participation of up to 40 young scholars presenting posters during coffee and lunch breaks will be fostered by waiving their participation fees. Priority will be given to female resarchers and a best poster award will be conferred at the end of the congress.

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Legend:
— By car — By foot ● Parking ◆ Chiesa di San Francesco
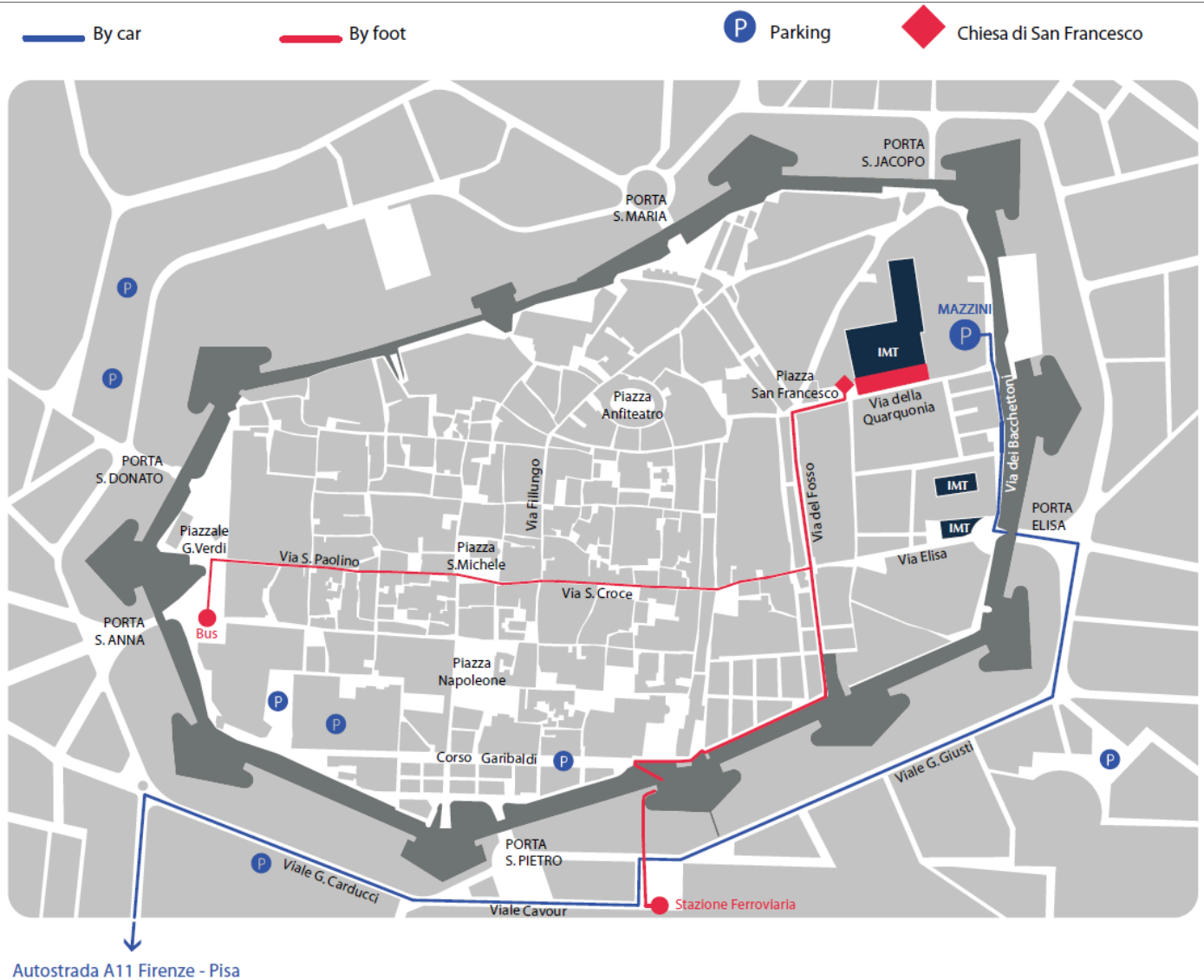
The workshop will take place at the IMT School for Advanced Studies Lucca (Piazza San Francesco 19, Lucca, Italy), from July 28 to July 31, 2025.

By car

Lucca is situated on the highway that connects Florence to Pisa and Versilia, called "Autostrada A11 Firenze-Mare". If you land in Florence or Pisa airports, please follow A11 directions.
The nearest highway exit to the IMT Campus is "Lucca-Est". You can leave your car at the Mazzini underground parking (Via dei Bacchettoni, reachable from Porta Elisa).

By train

The Lucca Train Station is located in Piazzale Ricasoli. It is directly connected to the main Tuscan cities such as Pisa and Florence. San Francesco Complex is easily reachable by foot from the Train Station.
You can check connections with Pisa, Florence and Viareggio on the Trenitalia website.

By airplane from Pisa

The nearest airport to Lucca is the Galileo Galilei Internation Airport of Pisa.
Pisa Airport – Pisa Centrale Railway Station: transfer provided by the Pisa Mover Shuttle service every 10 minutes and a journey time of about 5 minutes. At the Airport, the stop is located just outside the check-in area. At the Pisa Centrale Railway Station, the stop is located close to platform 14, from which you can easily reach the other platforms and station's main entrance.

Trenitalia website.

The CoTaPi taxi company is also available at Pisa Airport. A taxi from Pisa Airport to Lucca center could cost around € 50.00 and would take about 30 minutes.

By airplane from Florence

The School can also be reached from the Amerigo Vespucci International Airport of Florence, see .

On Sundays, one has to take the tramline T2 from the Airport to Santa Maria Novella Railway Station in Florence (approx. 25 minutes) and then a train to Lucca (see Trenitalia website for timetables).

On weekdays, one could take the tramline T2 from the Airport to the Guidoni stop (approx. 5 minutes) and then a direct coach to Lucca (see the timetable of the coach service operated by Autolinee Toscane).

Otherwise, the easiest way to reach IMT from the Florence Airport is by taxi. You can catch a taxi from just outside the airport for an approximate cost of € 100.

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Tentative program:

July 27 (Sunday), after 6 p.m.: registration of invited lecturers and welcome reception

July 28 (Monday)

8.30 a.m.: participants' registration

8.45 a.m.: opening addresses

9.00 a.m. - 10.30 a.m.: invited lectures

10.30 a.m. - 11.00 a.m.: coffee break

11.00 a.m. - 12.30 p.m.: invited lectures

12.30 p.m. - 1.30 p.m.: lunch break

1.30 p.m. - 3.00 p.m.: invited lectures

3.00 p.m. - 3.30 p.m.: coffee break

3.30 p.m. - 5.00 p.m.: invited lectures

July 29 (Tuesday)

8.30 a.m. - 10.30 a.m.: invited lectures

10.30 a.m. - 11.00 a.m.: coffee break

11.00 a.m. - 12.30 p.m.: invited lectures

12.30 p.m. - 1.30 p.m.: lunch break

1.30 p.m. - 3.00 p.m.: invited lectures

3.00 p.m. - 3.30 p.m.: coffee break

3.30 p.m. - 4.30 p.m.: invited lectures

4:30 p.m.: cultural visit

July 30 (Wednesday)

8.30 a.m. - 10.30 a.m.: invited lectures

10.30 a.m. - 11.00 a.m.: coffee break

11.00 a.m. - 12.30 p.m.: invited lectures

12.30 p.m. - 1.30 p.m.: lunch break

1.30 p.m. - 3.00 p.m.: invited lectures

3.00 p.m. - 3.30 p.m.: coffee break

3.30 p.m. - 5.00 p.m.: invited lectures

July 31 (Thursday)

9.30 a.m. - 10.30 a.m.: invited lectures

10.30 a.m. - 11.00 a.m.: coffee break

11.00 a.m. - 12.30 p.m.: invited lectures

12.30 p.m. - 1.30 p.m.: lunch break

1.30 p.m. - 3.00 p.m.: round tables

3.00 p.m. - 3.30 p.m.: best poster award

3.30 p.m. - 4.00 p.m.: closing address

Posters will be displayed during coffee and lunch breaks.

Organizers

- **Davide Bigoni**, University of Trento, Italy
- **Francesco Dal Corso**, University of Trento, Italy
- **Norman A. Fleck**, University of Cambridge, United Kingdom
- **Marco Paggi**, IMT School for Advanced Studies Lucca, Italy

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- **Basile Audoly**, CNRS & Institut Polytechnique de Paris, France
- **Ferdinando Auricchio**, University of Pavia, Italy
- **Lorenzo Bardella**, University of Brescia, Italy
- **Katia Bertoldi**, Harvard University, USA
- **Davide Bigoni**, University of Trento, Italy
- **Francesco Dal Corso**, University of Trento, Italy
- **Luca Deseri**, University of Trento, Italy
- **Vikram Deshpande**, University of Cambridge, United Kingdom
- **Walter J. Drugan**, University of Wisconsin, USA
- **Norman A. Fleck**, University of Cambridge, United Kingdom
- **Samuel Forest**, Mines Paris PSL, France
- **Massimiliano Fraldi**, University of Naples Federico II, Italy
- **Huajian Gao**, Tsinghua University, China
- **Yonggang Huang**, Northwestern University, USA
- **John W. Hutchinson**, Harvard University, USA
- **Jean-Baptiste Leblond**, Sorbonne Université, France
- **Robert M. McMeeking**, University of California Santa Barbara, USA
- **Graeme W. Milton**, The University of Utah, USA
- **Gennady Mishuris**, Aberystwyth University, United Kingdom
- **Alexander Movchan**, University of Liverpool, United Kingdom
- **Natasha Movchan**, University of Liverpool, United Kingdom
- **Alan Needleman**, Brown University, USA
- **Sebastien Neukirch**, Sorbonne University & CNRS, Paris, France
- **Christian F. Niordson**, Denmark Technical University, Denmark
- **Giovanni Noselli**, SISSA – International School for Advanced Studies, Italy
- **Marco Paggi**, IMT School for Advanced Studies Lucca, Italy
- **Anna Pandolfi**, Politecnico di Milano, Italy
- **Sergio Pellegrino**, California Institute of Technology, USA
- **Paolo Podio-Guidugli**, Accademia Nazionale dei Lincei, Roma, Italy
- **Pedro Pedro Ponte Castañeda**, University of Pennsylvania, USA
- **Nicola M. Pugno**, University of Trento, Italy
- **Enrico Radi**, University of Modena and Reggio Emilia, Italy
- **Gianni Royer Carfagni**, University of Parma, Italy
- **Gal Shmuel**, Technion-Israel Institute of Technology, Israel
- **Valery Smyshlyaev**, University College London, United Kingdom
- **Pierre Suquet**, CNRS Centrale Marseille, France
- **John Willis**, University of Cambridge, United Kingdom

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