



# 13th International Congress on Artificial Materials for Novel Wave Phenomena

# Metamaterials 2019

Rome, Italy, 16 – 21 September 2019

The *Thirteenth International Congress on Artificial Materials for Novel Wave Phenomena – Metamaterials 2019*, will comprise a **4-day Conference (16–19 September)**, and a **2-day Doctoral School (20–21 September)**. Organized by the *METAMORPHOSE VI AISBL* ([www.metamorphose-vi.org](http://www.metamorphose-vi.org)), this Congress follows the success of *Metamaterials 2007-2018* and continues the traditions of the highly successful series of *International Conferences on Complex Media and Metamaterials (Bianisotropics)* and *Rome International Workshops on Metamaterials and Special Materials for Electromagnetic Applications and Telecommunications*. The Congress will provide a unique topical forum to share the latest results of the metamaterials research in Europe and worldwide. It will bring together the engineering, physics, applied mathematics and material science communities working on artificial materials and their applications in electromagnetism/optics, acoustics/mechanics, transport, and multi-physics.

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## The Conference

The Conference includes *plenary presentations* given by leading scientists in the metamaterials research field and will address the main tendencies and discoveries in this field. Leading experts will present invited talks, which will review the state-of-the-art and address the latest advancements in their respective areas.

The technical oral talks and interactive poster sessions will encompass a broad range of themes, from fundamental theory of metamaterials to innovative applications in electromagnetism/optics, acoustics/mechanics, transport, and multi-physics.

## Submission Deadline

**10 March 2019**

## Paper Submission

Papers should be 2-3 pages long and contain an abstract, a brief conclusion, and a main body where technical content and novelty of the work are clearly presented.

Papers should be submitted as camera-ready PDF files to the website:

<http://congress2019.metamorphose-vi.org>

Authors are requested to use the template provided on the Congress website when preparing their submission. Authors of accepted and presented papers will be given the option of publishing their work in IEEE Xplore subject to the manuscript compliance with the format and copyright requirements.

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**Reduced fees** are available for personal or institutional members of the METAMORPHOSE VI and for students and senior participants over 65 years.

**Grants** will be provided for students and delegates from low-income countries. The grant rules and application forms are available at the Congress website. Applications should be submitted online before **2 June 2019**.



## Topics

We interpret metamaterials as rationally designed composites, the effective properties of which go beyond their bulk ingredients, qualitatively and/or quantitatively.

**We accept papers in any combination out of the following 8 categories:**

### Category 1 - Area

- Electromagnetic from DC to optical and beyond (including, e.g., metallic, dielectric, magnetic, and superconducting ingredients)
- Acoustic and mechanical (including, e.g., seismic)
- Transport (including, e.g., nanoelectronics, and thermal transport)
- Multi-physics

### Category 2 - Geometry

- 1D, 2D, and 3D metamaterials and metasurfaces
- (1+1)D, (2+1)D, and (3+1)D space-time metamaterials and metasurfaces
- Individual meta-atoms
- Meta-systems (including, e.g., gradient metamaterials, metamaterials in architectures designed by coordinate transformations, as well as far-field and near-field imaging systems)

### Category 3 - Arrangement

- Periodic
- Non-periodic

### Category 4 - Frequency

- Static
- Dynamic (including wave propagation)

### Category 5 - Type

- Passive
- Active

### Category 6 - Status

- Fixed properties
- Tunable properties (including, e.g., modulators, switchable properties, software-defined, and adaptive properties)

### Category 7 - Physical basis

- Classical (linear and nonlinear, including, e.g., multistable and programmable)
- Quantum

### Category 8 - Technology Readiness Level

- Effective-medium theories and homogenization (including, e.g., high-frequency and high-contrast homogenization and spatial dispersion modelling)
- Design (including, e.g., analytical approaches, topology optimization, numerical methods, machine and deep learning, bio-inspiration)
- Fabrication and characterization (including, e.g., new manufacturing approaches, 3D additive manufacturing, parameter retrieval, reliability testing, and fatigue testing)
- Applications and commercialization (including, e.g., antennas, sensing, spectral and spatial filtering, civil engineering, marine engineering, biology, and earthquake protection)

In addition, we accept papers on composites, plasmonics, photonic crystals, phononic crystals, and invisibility cloaking if related to the scope of the congress in some way.

## Congress Prizes and Student Paper Competition

The Congress Prizes will be awarded in different categories based on the merits of submitted papers and their conference presentations. The winners of these awards will be selected from all the presenters except the invited speakers.

Additionally, the *best student paper* will be decided in the **Student Paper Competition**. Students who wish to participate in the competition should apply online at the Conference website before the **10 March 2019** (the paper submission deadline). Students should be registered at the website to submit a paper and fill in an application form online. During the submission process, students will be requested to upload:

- a CV outlining their research activities,
- the paper title,
- an endorsement letter signed by the student's advisor.

The Student Paper Competition rules are available at the Congress website.

### Previous editions

- 2018 Espoo, Finland
- 2017 Marseille, France
- 2016 Crete, Greece
- 2015 Oxford, UK
- 2014 Copenhagen, Denmark
- 2013 Bordeaux, France
- 2012 St. Petersburg, Russia
- 2011 Barcelona, Spain
- 2010 Karlsruhe, Germany
- 2009 London, UK
- 2008 Pamplona, Spain
- 2007 Rome, Italy

**Contact:** [contact@metamorphose-vi.org](mailto:contact@metamorphose-vi.org)

### Doctoral School on Metamaterials

A course of the *European School on Metamaterials* operated by the METAMORPHOSE VI will be held in conjunction with the Congress (20-21 September 2019). The theme of the course is still under definition and will be announced shortly on the website.

The event will represent a unique opportunity for students and young researchers to get exposure to the latest advancements in the field of metamaterials and to meet the leading experts in this field. For more information visit the website: <http://school.metamorphose-vi.org/>

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