

MONGEOMETRIJA 2025 CONFERENCE ORGANIZING COMMITTEE

It is our honor and pleasure to invite you to participate in the **10th Jubilee International Conference on Geometry and Graphics – MONGEOMETRIJA 2025** of interdisciplinary nature that will be hosted once again at the University of Belgrade – Faculty of Architecture (Serbia) on 5th and 6th of June 2025, under the slogan: **Geometry Beyond. Sinergy of Past and Future.** Conference organizers are: Serbian Association for Geometry and Graphics (SUGIG) and University of Belgrade – Faculty of Architecture.

Conference co-organizers are: University of Belgrade – Faculty of Civil Engineering, University of Belgrade – Faculty of Mechanical Engineering, University of Belgrade – Faculty of Forestry, University of Belgrade – Faculty of Transport and Traffic Engineering and University of Arts in Belgrade – Faculty of Applied Arts.

Conference patrons are: International Society for Geometry and Graphics (ISGG) and Serbian Ministry of Science, Technological Development and Innovation.

Since the level of **interdisciplinarity** of the conference has been significantly increased, we are absolutely sure that you will find, after the insight into the Topics, those that best suit the exact scientific field of your research activities.

Deadlines can be found here.

Types of Registration Fees and their corresponding amounts are listed here.

Abstracts must not be longer than one page of A4 format and have to be prepared strictly respecting the Instructions and Template that will be available soon.

Abstract registration (submission) will be performed via EasyChair platform.

Organizing Committee Public-Relations Body

Note that **Full Papers**, no longer than 6300 characters with spaces namely 6 pages of A4 format, and **selected as such by our Award-Assignment Body** (grounded on its own re-evaluation based on the ranks previously assigned by our reviewers), are given the opportunity to be published in one of the chosen international scientific journals: **High-ranked namely slightly Lower-ranked** ones (with fee or free of charge, depending to the Journal itself).

Those Journals are alphabetically indexed in: OJS (under Open Journal Systems) as well as ANVUR, Arts & Humanities Citation Index, BFI List, Baidu, CLOCKSS, CNKI, CNPIEC, Current Contents/Arts and Humanities, Dimensions, EBSCO, Google Scholar, Japanese Science and Technology Agency (JST), Naver, OCLC WorldCat Discovery Service, Portico, ProQuest, SCImago, SCOPUS, Web of Science Citation Index Expanded (SCIE), TD Net Discovery Service, UGC-CARE List (India), Wanfang, zbMATH namely under usual OJS (under Open Journal Systems).

Of course, final decision to potentially submit selected Full Papers either in the Journal or in the Conference Proceedings will be by their first Authors (with the consent of the other corresponding (co)authors).

All Full Papers, except ones specified for potential publication in the Journals, will have their own DOI number and be printed in the electronic - Open Access

Conference Proceedings that will permanently be available on the SUGIG website, under CC BY-NC-ND 4.0 International Creative Commons License*.

Full Paper's Template and Instructions for authors will be available in time, according to the published Deadlines.

Image: Second Second

CONFERENCE AT GLANCE

The Conference's mission is:

- 1. to illuminate the wide spectrum of important roles of geometry in everyday living and work and to explore new aspects of its multidisciplinarity/transdisciplinarity,
- 2. to synthesise both technological, medical and artistic aspects of geometry, by addressing current challenges in these fields, including production, sustainability, health improvement, design, representation, communication, and legacy of humanity (heritage),
- to facilitate exchange and generation of both geometry-wise and complementary knowledge through live scientific multidisciplinary/transdisciplinary communication – meeting so successfully the Past and the Future in a synergic way, and
- 4. to examine the gap that inevitably exists between a triplet defined by: fundamental theory, scientific endeavours and everyday human needs, that is, practical applications especially having in mind a proliferation of digital technologies that allow increasingly intelligent tasks to be delegated to automated tools and have immense potential to increase productivity in the whole.

To do so, our aim is to contribute to the discussion of geometry in various domains whether it is directly or indirectly involved in, such as: architecture and urbanism, mechanical, civil, transportation engineering, arts, archaeology, spatial planning, forensics, medicine/dentistry, psychology, anthropology, ergonomy, informatics, education etc. – from various aspects, especially pointing out the possibilities of application of new methods to emerging various human

needs throughout technical, medical and social issues – supported by cutting-edge technology and complex methods (CAD, BiM, medical-wise imaging, engineering-wise sensoring, photogrammetry, geo(infor)matics, artificial intelligence and others). Methodological advances based on recent geometry-wise developments in collaboration with mathematics, mechanical engineering and computer science, that are applicable to disciplines mentioned above – at different levels of abstraction and formalisation will also be encouraged.

Welcomed Professionals:

- Architects
- Urbanists
- Mechanical Engineers
- Civil Engineers
- Transportation Engineers
- Artists
- Archaeologists
- Spatial Planners
- Forensic Scientists
- Medics/Dentists
- Psychologists
- Anthropologists
- Astronomers
- Ergonomists
- Computer Scientists
- Educators

MAIN CONFERENCE TOPICS AND SUBTOPICS CONCERNING CHALLENGES OF GEOMETRY AND GRAPHICS IN THIS ERA INCLUDE BUT ARE NOT LIMITED TO:

1. Theoretical Geometry and Graphics

Projections, Transformations, Deformations, Topology, etc.

Graphs, Complex Systems, Mechanisms, and Finite Elements, etc.

Fractal Geometry, Curves and Surfaces, Developable Surfaces and Unfoldings, Polyhedra, Discretisation, etc.

Spatial Analysis

(Space Syntax, Visibility Graph Analysis, Space Configuration, Accessibility and Visibility Analysis (SCAVA), Agent-Based Analysis, Rule Checkers, etc.)

Design Automation

(Parametricism, Generative Design, Shape Grammars, Processing, etc.)

History of Geometry, Engineering Graphics, and Computer Graphics

Artificial Intelligence in Fundamental Scientific Development of Geometry and Graphics

2. Forward Engineering: Computer-Aided Design, Computational Design and Information Modelling

Building Information Modelling

Direct/Explicit Modelling and Assembly Modelling

Parametric and Algorithmic Design

Performance-Based, Construction-Aware, Fabrication-Aware Design, etc.

Structural Design

Ergonomy and Mass Customisation in Industrial, Product Design, etc.

Design strategies and biomimicry

Advances in Engineering Graphics

Artificial Intelligence in Computer-Aided Design and Drafting Development

3. Reverse Engineering: Information Acquisition/Abstraction/Reviewing

Geo(infor)matics/GIS, Remote Sensing, and GIS-BIM Integration

(<u>Collection of Spatial Information</u>: Image-Based and Range-Based Spatial Data Acquisition, including tracking and mapping methods (GPS, RTK, WiFi, video, ISP, IoT, cellular phones), etc.;

Semantic Organisation of Spatial Information: including Geographic Information Systems – GIS, Building Information Models – BIM, Industry Foundation Classes – IFC, Ontologies for the built environment, Spatial/Urban Planning, Traffic Modelling, Pedestrian/Migration Patterns Modelling, etc.)

Digital Reconstruction of Physical/Heritage Entities of Different Scales

(Acquired Spatial Data Acquisition and Registration for: Digital Model/Shadow/Twin Creating, Digital Elevation Modelling, City/Heritage Modelling, etc.;

Features Extraction and Semantic Segmentation/Enrichment of Physical/Heritage Entities of Different Scales, etc.)

Observing, Surveying, Measuring, Monitoring, Archiving and Maintaining Physical/Heritage Entities of Different Scales (Including Large – Archeology-, Urban-, Traffic-Related, etc. and Extremely Large – Cosmic/Astronomy-Related, etc.)

Participatory Geometry and Graphics in Forensic Biometrics, Forensic Ballistics, Forensic Archaeology, Crime Patterns Identification, Trace Evidence, etc.

Participatory Geometry and Graphics in Computed Tomography and Imaging (In Forensics, Archaeology, Medicine, Dentistry, etc.) Artificial Intelligence in Reverse Engineering Approaches Development

4. Visualisation, Animation, Simulation and Gaming

Material Appearance Modelling and Geometry- and Topology-wise Texture Mapping

Geometry-Wise Rendering Bottlenecks Regarding Reflection, Transparency and Refraction

Immersive Technologies and Human-Computer interaction – Virtual Reality and Augmented Reality

Engineering Animation (Animated Motion In Aerospace, Automotive, Manufacturing, Construction Industries, AECO Sector, Robotics, etc.)

User Behaviour Patterns Analysis, Fluid Dynamics Analysis, and Kinematic/Sound/Structural/Thermal/Ballistic Analysis

Military/Disaster/Driving/Flying/Nautical Simulation and Structural Degradation Simulation

Pedestrian-/Vehicle-/Fluid-/Sound-/Thermal-/Ballistic-Flow Simulation

Artificial Intelligence in Visualisation, Animation, Simulation and Gaming Development

5. Digital Prototyping and Automated Manufacturing

Virtual and Physical Prototyping, etc. (Geometrv-Wise Demands and Constraints)

Mass Production and Digital Fabrication

(In Aerospace, Automotive, Manufacturing, Construction Industries, AECO Sector, Robotics, etc.)

6. Education in Geometry and Graphics

Perceptive Factors Influencing Spatial Ability Development

Cognitive Factors Influencing Spatial Reasoning Activation

Development of Spatial Reasoning Through Visual Programming and Coding

Innovative Didactic-Methodical Concepts of Teaching Geometry and Graphics

Strategies of Online Education and Digital Training

Artificial Intelligence in Education