

## **SYMPOSIUM ON ENGINEERING GEODESY – SIG2024** *the International Conference*

### **THE FINAL SYMPOSIUM PROGRAM**

Croatian Geodetic Society – CGS (FIG member) in cooperation with the University of Zagreb – Faculty of Geodesy (FIG academic member) and supported by FIG Commission 6 organizes the International Conference - Symposium on Engineering Geodesy – SIG2024: "Engineering Geodesy – Definition, Core Competencies and Unique Features". Zagreb, the capital of Croatia, has been chosen as the venue. The symposium will be held from September 12 to 14, 2024, in the congress hall of the Hotel Antunović Zagreb, Zagrebačka avenija 100a, 10000 Zagreb.

It is also possible to book accommodation for participants at the Antunović Hotel. Symposium participants who register to participate in SIG2024 and pay the registration fee for participation and need accommodation will receive a reservation code for reservation at Antunović Hotel from the organizers of SIG2024, the Croatian Geodetic Society, and with that code they should contact: rezervacije@antunovic.hr. This way, participants who wish to book accommodation will receive a preferential price for accommodation at the Antunović Hotel for the duration of SIG2024. Participants make their own accommodation reservations and pay for their accommodation in the Antunović Hotel.

Based on the submitted abstracts, which were reviewed and accepted by the scientific committee, the symposium program has been finalized. It contains 29 papers that will be presented in 8 technical sessions. In addition to these papers and sessions, 3 additional papers on the main topics of the symposium will be presented as invited lectures by the keynote speakers. The invited lecturers will be eminent geodetic experts in the field of

engineering geodesy, both from Croatia and around the world. The SIG2024 symposium program, with all the essential details and information, is below.



The registration fees for participation in the symposium and registration are published and open on the SIG2024 website: <https://sig2024.en.hgd1952.hr/>. Multiple participation and registration options are offered, such as early and normal registration fees and registration fees for students. All the details of what individual registration fees and registrations include are published on the symposium's website.

The SIG2024 symposium program for all sessions and events can be found in the table below, with the detailed program for all technical sessions provided further down.

|             | 11/09/2024              | 12/09/2024              | 13/09/2024             | 14/09/2024   |
|-------------|-------------------------|-------------------------|------------------------|--|
| 08.00-09.00 |                         | Registration            | Registration           |  |
| 09.00-09.30 |                         | <b>Opening SIG2024</b>  | Technical session 5    |  |
| 09.30-10.30 |                         | Invited lecture1        |                        |  |
| 10.30-11.00 |                         | <i>Coffee break</i>     | <i>Coffee break</i>    |  |
| 11.00-12.30 |                         | Technical session 1     | Technical session 6    | <i>Sightseeing of the historical part of the city of Zagreb.</i> |
| 12.30-14.00 |                         | <i>Lunch</i>            | <i>Lunch</i>           |  |
| 14.00-15.30 |                         | Technical session 2     | Technical session 7    |  |
| 15.30-16.00 |                         | <i>Coffee break</i>     | <i>Coffee break</i>    |  |
| 16.00-17.30 |                         | Arrival<br>Registration | Technical session 3    |  |
| 17.30-17.45 | <i>Break</i>            |                         | <b>Closing SIG2024</b> |  |
| 17.45-18.30 | Technical session 4     |                         |                        |  |
| 18.30-19.15 | Invited lecture2        |                         |                        |  |
| 19.00-21.00 | <b>Icebreaker party</b> |                         |                        |  |
| 20.00-23.00 |                         | <b>Gala dinner</b>      |                        |  |

A detailed program of the technical sessions, with all authors and presenters (the presenters are underlined) can be found below.

## **THURSDAY, September 12, 2024**

Invited lecture 1, 09.30-10.30:

1. Heiner Kuhlmann: **Engineering Geodesy – Definition, Core Competencies and Unique Features illustrated with two examples from infrastructure monitoring and crop production**

Technical session 1, 11.00-12.30: TLS – Terrestrial Laser Scanners

Chairman: Hrvoje Tomić

Vice-chairman: Josip Križanović

1. Tomislav Medić, Nianfang Shi, Nicholas Meyer, Andreas Wieser: **Geomonitoring Using Long-Range TLS in Swiss Alps**
2. Ela Ključarić, Mate Botica, Lovro Klarić, Vanja Miljković: **The implementation of terrestrial laser scanning for bridge inspection and reconstruction purposes**
3. Maria Elżbieta Kowalska, Janina Zaczek-Peplinska: **Selected aspects of the use of point cloud expansions on planes in the analysis of deformations of cylindrical surfaces**
4. Richard Honti, Ján Erdélyi, Tomáš Funtík, Peter Kyrinovič: **Analysing Different Techniques for 3D Capture of Geometric Information of Building Structures**

Technical session 2, 14.00-15.30: BIM & 3D Models of Buildings

Chairman: Miodrag Roić

Vice-chairman: Doris Pivac

1. Tomáš Funtík, Ján Erdélyi, Richard Honti: **BIM-based Construction Progress Monitoring System**
2. Ján Erdélyi, Richard Honti, Aset Madiev, Tomáš Funtík, Alojz Kopáček: **Checking the Geometry of Building Structures Using Building Information Models and Point Cloud**
3. Matej Varga, Yamini Patankar, Nando Grossenbacher, Merlin Alfredsson, Anjo Weichbrodt, Robert J. Flatt, Andreas Wieser: **A 3D model with extended reality of Lausanne Cathedral**

4. Josip Križanović, Vinko Stančić, Miodrag Roić: **The Quality of a Mobile Phone Laser Scanner for Creating 3D Models of Buildings**

Technical session 3, 16.00-17.30: Deformation Measurements

Chairman: Ján Erdélyi

Vice-chairman: Loris Redovniković

1. Rinaldo Paar, Ante Marendić, Petra Krnjak, Ana Kosor, Ivan Jakopec, Petar Jelić: **Monitoring i određivanje pomaka i deformacija glavnog raspona Pelješkog mosta probnim ispitivanjem**
2. Boštjan Kovačič, Damjan Želodec, Damjan Doler: **Praćenje deformacija aerodromskih staza neinvazivnim metodama**
3. Damjan Želodec, Damjan Doler, Boštjan Kovačič: **Primjenjivost geodetskih i drugih metoda u detekciji deformacija u zračnoj infrastrukturi – primjer Zračne luke Edvard Rusjan Maribor**
4. Zlatko Srbinoski, Zlatko Bogdanovski, Filip Kasapovski, Tome Gegovski, Filip Petrovski: **Determination of the deformations of the Antonini column model in laboratory conditions**

Technical session 4, 17.45-18.30: Geoinformation infrastructure

Chairman: Ante Marendić

Vice-chairman: Vlado Cetl

1. Damjan Doler, Nikolaj Šarlah: **Informacijski sustav prostornog uređenja**
2. Matija Mirtl, Milenko Kundid: **Moderne baze podataka za monitoring, Red line metro, Tel Aviv, Izrael**

Invited lecture 2, 18.30-19.15 (45 min):

1. Igor Grgac: **Locata: Terrestrial time synchronized radio positioning system as a complementary to GNSS for positioning, navigation and timing**

## **FRIDAY, September 13, 2024.**

### Technical session 5, 09.00-10.30: UAV, Lidar & Photogrammetry

Chairman: Rinaldo Paar

Vice-chairman: Sanja Tucikešić

1. Hrvoje Tomić, Rinaldo Paar, Gabrijel Ondrašek: **Izmjera nedostupnog terena: Određivanje volumena mulja Zagrebačkih otpadnih voda korištenjem low cost UAV LiDAR sustava**
2. Gabrijel Ondrašek, Jelena Horvatinec, Benjamin Atlija, Nada Maurović, Hrvoje Tomić, Rinaldo Paar: **Estimation of Sewage Sludge Stockpile at a Wastewater Treatment Plant Combining UAV LiDAR & Physical Survey**
3. Ivan Jakopec, Ante Marendić, Rinaldo Paar, Igor Grgac, Petra Krnjak, Ana Kosor, Josip Pušić: **Analiza različitih pristupa određivanja pomaka klizišta primjenom fotogrametrijske UAS izmjere**
4. Federica Pederzani, Teru Katono, Vedran Solarić: **Combining point clouds from mobile SLAM scanner with photogrammetry techniques in landslide survey**

### Technical session 6, 11.00-12.30: Geodetic Networks, Data Quality Control & Calibration

Chairman: Siniša Mastelić-Ivić

Vice-chairman: Boštjan Kovačić

1. Antonio Tupek, Mladen Zrinjski, Đuro Barković, Krunoslav Špoljar: **Dual-Frequency GPS Receiver Antenna PCC Estimation and Validation at the Faculty of Geodesy in Croatia**
2. Sanja Tucikešić, Miroslav Vujasinović, Tanja Đukanović, Branko Božić, Mileva Samardžić Petrović: **The highway control geodetic network optimization – Banja Luka/Prijedor case study**

3. Vladan Bošković, Branko Božić, Milutin Pejović, Ratko Nikolić: **Analiza horizontalnih pomaka brane primjenom konvencionalnih i robusnih metoda**
4. Mladen Pandža, Tomislav Bašić, Rinaldo Paar: **Točnost geodetske mreže preduvjet za uspjeh velikih infrastrukturnih projekata**

Technical session 7, 14.00-15.30: Indoor and Underwater Navigation

Chairman: Mladen Zrinjski

Vice-chairman: Zlatko Srbinoski

1. Sebastijan Sekulić, Nikica Spudić: **Pozicioniranje u podvodnom okruženju – metode i izazovi**
2. Lana Ivković, Hrvoje Tomić, Rinaldo Paar, Ante Marendić, Siniša Mastelić-Ivić: **Exploring the Feasibility of Low-Cost Photogrammetry for Underwater Engineering Tasks**
3. Nikola Kranjčić, Danko Markovinović, Vlado Cetl, Olga Bjelotomić Oršulić: **Underground infrastructure data acquisition using electromagnetic locator device**
4. Nikola Vučić: **3D katastar u službi navigacije u zatvorenim prostorima**

Technical session 8, 16.00-16.45: Engineering Geodesy in Construction

Chairman: Branko Božić

Vice-chairman: Antonio Tupek

1. Sergej Baričević, Đuro Barković, Mladen Zrinjski, Marko Papić: **Određivanje vertikalnosti vjetroturbine u VE Mesihovina, Bosna i Hercegovina**
2. Matej Varga, Benjamin Weyer, Julia Koch, Benedikt Soja, Andreas Wieser: **CERN FCC geodesy project: status and results until 2023**



Invited lecture 3, 16.45-17.30:

1. Dragan Furić: **Uloga geodetskog stručnjaka u niskogradnji u kontekstu tehnološkog razvoja i njegove odgovornosti za sve provedene geodetske zadatke**

We look forward to your arrival at our traditional International Symposium on Engineering Geodesy - SIG2024.

Croatian Geodetic Society

