3rd TAGRA

Friday, October 16, 2026 - Sunday, October 18, 2026

Gumushane

Scientific Program

Scientific Program Overview
The scientific program of **TAGRA – Trends and Advances in Global Research and Applications** is organized around a set of **broad thematic tracks**, designed to foster interdisciplinary exchange while maintaining strong scientific coherence.

Each track represents a **major research theme** and is implemented as a **dedicated session** in the program. All submissions within the same track are presented within the same session, either **on-site or online**, depending on the final program configuration.
Main Thematic Tracks

The TAGRA scientific program covers 14 main research themes.
Each thematic track includes multiple **sub-themes**, reflecting current trends and applications within the field.
Session Structure
Each thematic track corresponds to **one scientific session**.
Sessions may be held **face-to-face or online** within the hybrid program.
Oral and poster presentations are scheduled within their respective track sessions.
Session details, presentation order, and access information are available in the **Timetable**.
How to Navigate the Program

Participants are encouraged to:
- Use the **Timetable** to view session times and access details.
- Explore **Tracks** to identify sessions relevant to their research interests.
- Consult individual **Contributions** for presentation-specific information.

The program is designed to support focused discussions within tracks while enabling cross-disciplinary interaction across sessions.

Physical Sciences and Applied Physics

Classical, Continuum, and Computational Physics

Condensed Matter and Materials Physics

Photonics, Optics, and Spectroscopy

Nuclear, Radiation, Plasma, and Applied Physics

Instrumentation, Sensors, and Measurement Science

Astronomy and Space Sciences

Chemical Sciences and Sustainable Chemical Technologies

Physical and Theoretical Chemistry

Materials, Polymer, and Surface Chemistry

Analytical Chemistry and Chemometrics

Chemical Process Engineering and Reaction Systems

Green Chemistry and Environmental Chemistry

Life Sciences, Biotechnology, and Biomedical Systems

Molecular and Cellular Biology

Genomics, Bioinformatics, and Systems Biology

Microbiology and Bioprocessing

Biotechnology and Biochemical Engineering

Biomedical Devices and Biomaterials

Medical Imaging, Medical Physics, and Diagnostics

Mathematics, Modelling, and Computational Foundations

Applied Mathematics and Differential Systems

Multiphysics and Multiscale Modelling

Numerical Methods and Scientific Computing

Statistics and Uncertainty Quantification

Optimization and Decision Models

Artificial Intelligence, Data Science, and Intelligent Computing

AI, ML, NLP and Computer Vision

Data Science and Big Data and Knowledge Discovery

Software Engineering, Software Architecture, and DevOps

Computer Systems, Networks and Distributed Computing

Quantum, Embedded, Edge and Cyber-Physical Computing Systems

Algorithms, Theory of Computation, and Data Structures

Energy, Thermal–Fluid, and Mechanical Engineering Systems

Thermodynamics and Heat Transfer

Fluid Mechanics and Multiphase Flows

Energy Conversion Systems

Renewable and Hybrid Energy Technologies

Energy Storage and System Optimization

Electrical, Electronics, and Intelligent Control Systems

Embedded Systems and IoT

Power Electronics and Drives

Control, Automation, and Robotics

Signal Processing and Intelligent Sensing

RF, Microwave, and Electromagnetic Systems

Civil Infrastructure, Geospatial Systems, and Smart Cities

Structural and Earthquake Engineering

Construction Technologies and SHM

Transportation Systems and Traffic Modelling

Geomatics, Geospatial Science, Remote Sensing and GIS

Smart Cities and Digital Infrastructure

Industrial Engineering, Systems, and Human-Centered Design

Operations Research and Optimization

Supply Chain and Logistics Engineering

Human Factors, Ergonomics, and Occupational Health & Safety

Digital Twins and Industrial Analytics

Engineering Management and Innovation

Environmental Systems, Climate, and Earth Sciences

Environmental Modelling and Monitoring

Climate Change and Adaptation

Water and Wastewater Technologies

Soil, Air, and Ecosystem Remediation

Circular Economy and Sustainability

Agricultural and Food Engineering Systems

Marine Sciences, Fisheries, Aquatic and Coastal Systems

Physical Oceanography and Coastal Processes

Marine Ecology and Monitoring

Offshore Structures and Coastal Engineering

Blue Economy and Marine Resources

Aquaculture and Fisheries

Materials Science and Advanced Manufacturing

Functional and Smart Materials

Advanced and Additive Manufacturing

Surface Engineering and Tribology

Materials Informatics and Lifecycle Assessment

Materials and Metallurgical Engineering

Nano-Technology and Nano-Engineering

Nano-Synthesis and Nano-Characterization

Nano-Processes and Nano-Fabrication

Interdisciplinary, Emerging, and Cross-Cutting Research

Vocational and Technical Education and Skills Development

Responsible Innovation and Research Ethics

Technology Transfer and Industry-Academia Collaboration

Geosciences, Mining, and Subsurface Engineering

Geology, Mineralogy, and Petrology

Applied Geophysics and Seismological Studies

Mining Engineering and Rock Mechanics

Mineral Processing and Extractive Technologies

Sustainable Mining and Geo-Environmental Engineering