

Trusted Measurement, Trusted Analysis

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Universidade do Algarve

Scientific Programme

The metrology community is tasked with providing a coherent framework in which measurement results can be made interoperable through metrological traceability to an agreed set of standard units. Most technical data used in decision-making is the result of workflows that depend on measurement data, models, algorithms and software, and for such outputs to be trustworthy and used effectively, it is necessary that all elements in the workflow are transparent, principled, explainable and interpretable and can be quality assured. The overall aim of the conference is to provide a multi-disciplinary forum to address how the metrology community can support trustworthy workflows across all scientific and technical disciplines, through

- Extending metrology traceability and uncertainty quantification concepts to encompass complete workflows, from data to decisions
- Using a multidisciplinary approach to address measurement and analysis challenges relating to new measurement modalities and applications
- Understanding better the measurement theory, modelling, statistical and computational requirements in metrology and develop new mathematical and computational tools for measurement and testing.

Topics

Measurement Theory

Contributions relating to the general themes of: concepts, axioms, rules, principles, methods, and procedures for obtaining, processing, expressing and communicating correct and reliable measurement results of both physical and non-physical quantities.

Mathematical and statistical modelling

Contributions relating to the general themes of: data analysis, machine learning and uncertainty quantification, AI, knowledge representation and reasoning, trustworthiness of data, models, algorithms, and software

Testing, inspection and certification

Contributions relating to the general themes of: developing measurement science and best practice applied in industry, environmental protection, healthcare, safety and quality of life.

Measurement in life and social sciences

Contributions relating to the general themes of: measurement of whole body, organ and cellular function, measurement in the clinical laboratory, medical Imaging, medical information systems, diagnosis and medical decision making, knowledge-based systems, intelligent instrumentation in medicine and healthcare.