

**Call for papers – Special Session on:**

# **Methods and Applications of Interval Analysis**

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The concept of Interval analysis, interval mathematics, interval arithmetic, or interval computation, is suitable for a variety of purposes. The most common use is to keep track of and handle rounding errors directly during the calculation and of uncertainties in the knowledge of the exact values of physical and technical parameters. The latter often arise from measurement errors and tolerances for components or due to limits on computational accuracy. Interval analysis also helps find reliable and guaranteed solutions to equations and optimization problems.

Several problems can be solved by means of algorithms based on interval-arithmetic computation.

The goal of this special session is to gather people to present and discuss new recent advances on control, supervision and diagnosis field using interval analysis and investigate their potential use in various engineering applications.

Topics of interest include, but are not limited to, the following topics:

- Control system
- Fault Detection and diagnosis
- Robust control
- State estimation
- Supervisory control
- Applications of computing
- Robotics applications
- Biological and Medicinal applications
- Chemical and Petrol applications
- Applied Mathematics

**Call for papers – Special Session on:**

**Control and Fault Diagnosis methods applied to  
nonlinear systems**

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Faults/failures in technical systems may have many undesired consequences as damage to technical parts of plants, endangering of human life or pollution of the environment. Equipment failures may also have profound negative impact on production costs and product quality. The development of fault diagnosis methods allowing early detection of faults/failures is crucial in order to protect complex manufacturing machineries, to increase human life safety and to support decision making on emergency actions and repairs. Moreover, in highly automated industrial systems where maintenance or repair cannot be carried-out immediately, it is crucial to employ fault-tolerant control systems capable of ensuring acceptable performance even in the presence of faults.

The goal of this special session will bring together academics, engineers and practitioners active in the fields of fault diagnosis, fault tolerant control and their application in process monitoring and maintenance.

Topics of interest include, but are not limited to, the following topics:

- Fault detection and isolation
- Fault tolerant control
- Fault recovery
- Supervisory control
- Applications of fault tolerance control