

# IEEE International Conference on Event-based Control, Communications & Signal Processing

EBCCSP 2015  
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KRAKÓW

Call for Papers to Special Session SS01

## Mixed-Criticality Systems

Special Session Organizers:

Roman Obermaisser, University of Siegen

[roman.obermaisser@uni-siegen.de](mailto:roman.obermaisser@uni-siegen.de)

Raimund Kirner, University of Hertfordshire

[r.kirner@herts.ac.uk](mailto:r.kirner@herts.ac.uk)

### Keynote Presentations

**Panos Antsaklis**

University of Notre Dame, USA

**Karl Henrik Johansson**

KTH Royal Institute of  
Technology, Sweden

**Yannis Tsividis**

Columbia University, USA

### Plenary Presentations

**Tobi Delbrück**

ETH Zurich, Switzerland

**Maurice Heemels**

Eindhoven University of  
Technology, The Netherlands

**Jan Lunze**

Ruhr-University Bochum, Germany

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ABB Krakow, Poland

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AGH Univ. of Science & Technology,  
Poland

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Max Planck Institute for Intelligent  
Systems, Tübingen, Germany

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**Sylvain Durand Chamontin**

ISM, Marseille, France

**José Luis Guzmán Sánchez**

Universidad de Almería, Spain

### Aim and scope:

Modern electronic systems, such as ground-vehicles, aircraft, or space vehicles combine a multitude of distributed applications with varying safety and real-time requirements. Even in high-end consumer cars we already find high criticality control applications as well as low criticality audio/video applications. Another example would be a space vehicle, like a satellite, that for weight reasons aims at using the same physical wiring for control data and video data. A similar weight- and, therefore, cost-reduction argument holds true for novel avionics systems. In general, these systems are called mixed-criticality systems, and it is the traditional federated approach to realize private networks for individual applications to avoid interference between criticality levels. In order to use the on-board resources more efficiently, the trend throughout industrial areas is towards integrated architectures, for example Distributed Integrated Modular Avionics (DIMA) and the Automotive Open System Architecture (AUTOSAR).

Mixed-criticality architectures with support for modular certification make the integration of application subsystems with different safety assurance levels both technically and economically feasible. In particular, time-triggered networks for the segregation of these subsystems are essential to avoid fault propagation and unintended side-effects due to integration. Also, mixed-criticality architectures must deal with the heterogeneity of subsystems that differ not only in their criticality, but also in the underlying computational models and timing models (e.g., sporadic event-based control and periodic control functions). Non safety-critical subsystems often demand event-driven adaptability and support for dynamic system structures, while certification standards impose static configurations for safety-critical subsystems.

### Topics within the scope of the Special Session:

The focus of the special session is on event-based and time-based system models, architectures, platforms and applications for systems with mixed-criticality requirements. Suggested topics of interest include (but are not restricted to) the following:

- Event-triggered and time-triggered architectures for mixed-criticality systems
- Communication networks with support for temporal and spatial partitioning
- Integration of heterogeneous mixed-criticality subsystems (e.g., coexistence of event-triggered and time-triggered activities)
- Event-based reconfiguration and resource management
- Validation, verification and certification aspects (e.g., modular certification)
- Applications and case studies (e.g., in avionic and automotive systems)

**Submission of Papers:** The working language of the conference is English. The special session papers are limited to 8 double column pages in a font no smaller than 10-points. Manuscripts must be submitted electronically in PDF format, according to the instructions contained in the Conference web site.

**Further Information:** EBCCSP 2015 Conference Secretariat: Tel: + 48 12 617 3034, Fax: + 48 12 633 2398; Email: [ebccsp15@agh.edu.pl](mailto:ebccsp15@agh.edu.pl)

**Paper Acceptance:** Each accepted paper must be presented at the conference by one of the authors. The final manuscript must be accompanied by a registration form and a registration fee payment proof. All conference attendees, including authors and session chairpersons, must pay the conference registration fee, and their travel expenses.

**No-show Policy:** The EBCCSP 2015 Organizing Committee reserves the right to exclude a paper from distribution after the conference at IEEE Xplore if the paper is not presented at the conference.

### Author's Schedule:

*Deadline for submission of special sessions papers:*

February 15, 2015

*Notification of acceptance of special sessions papers:*

March 15, 2015

*Final manuscripts due – special sessions:*

May 1, 2015

<http://www.ebccsp2015.org>

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