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**on the 48<sup>th</sup> ESReDA Seminar**  
**Critical Infrastructures Preparedness: Status of Data for Resilience**  
**Modelling, Simulation and Analysis**  
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## **Guest Editorial**

*The Journal of Polish Safety and Reliability Association, Volume 6, Number 3* is a special issue including papers presented at the 48<sup>th</sup> ESReDA seminar that was held on May 28-29, 2015, hosted by the Wrocław University of Technology, Poland.

Critical infrastructures protection represents an ever increasing concern in modern societies. The continuity of vital services supply is a necessary condition in order to maintain the political stability, the effectiveness of the governance, the economic flow of activities and the security of the citizen.

The critical infrastructures are more and more: connected, interdependent and smart. They are simply more and more complex systems. This growing complexity renders the modern society highly competitive, productive and prosperous. However, it increases the vulnerability of the modern societies. Enhancing the critical infrastructures preparedness and resilience becomes then a major target for different stakeholders in the modern society: academy, CIs' operators, decision makers, crises managers and civil society. Preparedness and resilience of CIs are dependent on the nature of both: the CIs and the threat. Effective Modelling, Simulation and Analysis (MS&A) activities of the CIs preparedness and resilience can't but consider simultaneously both: the CIs and the threats.

The European Safety, Reliability and Data Association (ESReDA) as one of the most active EU-networks in the field has initiated a project group (CI-PR/MS&A-Data) on the "Critical Infrastructure/Modelling, Simulation and Analysis – Data". The main focus of the project group is to report on the state of progress in MS&A of the CIs preparedness & resilience with a specific focus on the corresponding data availability and relevance.

In order to report on the most recent developments in the field of the CIs preparedness & resilience MS&A and the availability of the relevant data, ESReDA held its 48th Seminar on the following thematic: "Critical Infrastructures Preparedness: Status of Data for Resilience Modelling, Simulation and Analysis (MS&A)".

***Mohamed Eid***

## **Preface**

*Journal of Polish Safety and Reliability Association* is an international journal devoted to the development and application of the methods of modelling, identification, prediction and optimization of the reliability, safety and security of complex systems and processes. The journal mainly publishes the papers and lectures accepted for and presented at the *Summer Safety and Reliability Seminars*.

The idea beyond the organization of the annual, one-week *Summer Safety and Reliability Seminars* is to provide a forum for discussing, advancing and developing methods for the safety and reliability analysis of the complex systems, which form the backbone of our modern Societies.

The subjects of the Seminars are chosen each year by the Programme Board in an effort to dynamically represent the methodological advancements developed to meet the newly arising challenges in the field of safety and reliability analysis.

This year the emphasis was addressed to the following subjects:

- Reliability and Safety Improvement and Optimization Methods ;
- Accident Consequences Modelling;
- Reliability and Safety of Complex Systems and Processes;
- Safety of Critical Infrastructures;
- Monte Carlo Simulation Methods in Safety and Reliability.

Both 1-2 hours lectures on advanced methods (accompanied by a corresponding full text of up to 12 pages) and technical presentations of 20-30 minutes on applications of such methods (with corresponding full text of up to 8 pages) are offered during the plenary sessions and the seminar sessions, respectively.

The extended version of papers and lectures in the form of articles are collected in the *Journal of Polish Safety and Reliability Association: Summer Safety and Reliability Seminars*, which constitute an up-to-date reference textbook for the participants to the Seminars and all the researchers in the field.

The JPSRA Editorial Board with the assistance of the Invited Professors have performed the evaluations of all contributions: as a result, recommendations have been sent out to help the authors improving their work. In all, 33 papers and lectures have been accepted for presentation during the Seminar and for publication in the *Journal of Polish Safety and Reliability Association: Summer Safety and Reliability Seminars*. 17 of the papers and lectures are included in Number 1 and 16 of the papers and lectures are included in Number 2.

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### **Invited Professors (Topics)**

Heinz-Peter Berg, Bundesamt für Strahlenschutz, Germany (Resilience of Nuclear Plants in Case of Hazards)  
Mohamed Eid, Commissariat al'Energie Atomique, France (Critical Infrastructure Protection – Coupled Modelling for Threats and Resilience)  
Franciszek Grabski, Gdynia Naval Academy, Poland (Semi-Markov Approach to System Reliability and Maintenance)  
Lucjan Gućma, Maritime University of Szczecin, Poland (Navigation Risk Management Methods at Coastal Areas)  
Krzysztof Kołowrocki, Gdynia Maritime University, Poland (European Critical Infrastructures Safety Management System - Research Project Idea)  
Kazimierz Kosmowski, Gdańsk University of Technology, Poland (Functional Safety and Reliability Methodology for Critical Industrial Plants)  
Jacek Malinowski, Systems Research Institute of the Polish Academy of Sciences, Poland (Markov Model of Complex Technical System Operating in Basic and Emergency Modes)  
Uwe Kay Rakowsky, Ruhr West University of Applied Sciences, Germany (On the Basic Concepts of Safety Engineering)  
Athanasios Sfetsos, National Center for Scientific Research “Demokritos”, Greece (Strengthening Critical Infrastructure Resilience to Climate Change)  
Joanna Soszyńska-Budny, Gdynia Maritime University, Poland (Operation Cost and Safety Optimization of Complex Technical Systems)  
Christian Tanguy, Orange Labs, France (On file unavailability for specific storage disks arrangement in Cloud systems)  
Barbara Tchórzewska-Cieślak, Rzeszów University of Technology, Poland (Crisis Situation Management Issues in Urban Areas Water Supply)

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