

**60<sup>th</sup> ESReDA Seminar:  
Advances in Modelling to Improve Network Resilience**

*4<sup>th</sup> and 5<sup>th</sup> May 2022,  
Univ. Grenoble-Alpes, France*

*Submission deadlines:  
Abstracts: 15<sup>th</sup> Jan; Papers: 30<sup>th</sup> March 2022*



## 1<sup>st</sup> Call for Papers

### Scope of the Seminar

In resilience engineering, failure is an inability to adapt to disruptions rather than a breakdown or malfunction, as is commonly the case in traditional risk analysis. Resilience encompasses the phases of avoiding (being proactive against the occurrence or consequences), absorbing (withstanding without reconfiguration), adapting to (reconfiguring) and recovering from disruptions (restoring the pre-disruption state as closely as possible).

Modern engineering systems continually increase in size and complexity, whilst also becoming more distributed, integrated, and autonomous, all of which can lead to many safety and risk management challenges. There is a constant, relentless pursuit of cheaper, more efficient, optimised performance, which can inadvertently introduce system vulnerabilities and potentially erode safety margins. Threats constantly evolve and emerge, with recent years seeing numerous failures of aging infrastructure, catastrophic events following natural disasters or due to the effects of climate change, and major disruption caused by deliberate acts such as terrorism and cyber or hybrid attacks. Increasingly automated and software-intensive infrastructure can struggle to adapt to unanticipated situations and can hence be extremely vulnerable to emergent threats. Coupling this with the growing complexity and interdependencies between infrastructure assets, it is clear that there is an urgent need for new approaches to protect these critical systems.

Many of the critical infrastructure systems on which modern society is so dependent are networks. These include transport networks (rail, metro, highway, air traffic and shipping routes), utilities (electricity, gas, water) and communications (mobile phone, land line phones, internet). The disruption of such systems can have a big impact on the communities that they serve. Such critical systems must be resilient. It is important to understand the characteristics of such networks and the methods that exist to model their resilience and to identify their weaknesses so that efforts are targeted at those places that will most protect network performance.

The 60th ESReDA seminar will be a forum for exploring these and other related issues. We aim to discuss theories, concepts, and experiences of methods for improved network resilience. Authors are invited to present their research and experience and discuss challenges in enhancing resilience through modelling. We are encouraging new ideas, case studies and cross-sectoral and inter-disciplinary research on the theme

of network resilience. This seminar will bring together researchers, practitioners, specialists and decision-makers to discuss strategies and practical experiences.

## **Target groups and domains of application**

Papers for the seminar are invited from various stakeholders, from practitioners to researchers (industrialists, regulators, safety boards, universities, R&D organisations, engineering contractors and consultants, training specialists) and could address different sectors:

- Transport: rail, road, air and maritime
- Critical infrastructure: electricity, water, telecommunications, information systems
- Urban planning and management
- Public sector and government.

This seminar is aimed at addressing resilience due to different threats, such as failures of aging infrastructure, natural disasters and climate change, intentional attacks (cyber-security and terrorism), and emerging threats, met by different industries, critical infrastructures and urban settlements. Other topics may be included if they fit well within the theme of the seminar and are related to engineering resilience.

## **Seminar organisation**

The Seminar is jointly organised by ESReDA and Univ. Grenoble Alpes

### *Location*

Grenoble

### *Chairperson of the Seminar*

REMENYTE-PRESCOTT Rasa (University of Nottingham, UK)

ANDREWS John (University of Nottingham, UK)

### *Technical Programme Committee (TPC)*

BAROTH Julien (Université Grenoble Alpes, 3SR, France)

BASTEN Rob (Eindhoven University of Technology, Netherlands)

BERENGUER Christophe (Université Grenoble Alpes, GIPSA-lab, France)

DUNNETT Sarah (Loughborough University, UK)

EID Mohamed (ESReDA President, Consultant at RiskLyse, France)

FECAROTTI Claudia (Eindhoven University of Technology, Netherlands)

JACKSON Lisa (Loughborough University, UK)

JUDEK Clement (IMDR, France)

KOPUSTINSKAS Vytis (European Commission, Joint Research Centre – Ispra, Italy)

LANNOY Andre (IMDR, France)

LIU Yiliu (Norwegian University of Science and Technology, Norway)

OTTENBURGER Sadeeb Simon (Karlsruhe Institute of Technology - KIT, Germany)

POHL Ed (University of Arkansas, USA)

SARUNIENE Inga (Lithuanian Energy Institute, LEI)

SCHAUER Stefan (Center for Digital Safety & Security, Austrian Institute of Technology, Austria)

TACNET Jean Marc (Université Grenoble Alpes, INRAE, ETNA, France)

TUBIS Agnieszka (Wroclaw University of Science and Technology, Poland)

UTANS Andrejs (Riga Technical University, Latvia)

VAN HOUTUM Geert-Jan (Eindhoven University of Technology, Netherlands)

YUSTA Jose Maria (University of Zaragoza, Spain)

*Opening of the Seminar: 4<sup>th</sup> May 2022*

*Closing of the Seminar: 5<sup>th</sup> May 2022*

***Local Organization Committee:***

BAROTH Julien (UGA, France) – Local Organizing Committee chairperson

BERENGUER Christophe, (GINP, France)

GEORGES Didier (GINP, France)

PERRIER Sylvie (UGA, France)

***Logistics:***

*To be defined*

**Relevant dates, abstracts and papers submission, preliminary schedule:**

- Submission of abstracts: by 15<sup>th</sup> of January 2022.
- Notification to the authors: by 30<sup>th</sup> of January 2022.
- Submission of full papers: by 30<sup>th</sup> of March 2021.
- ESReDA Board of Directors meeting, project groups' meetings: 3<sup>rd</sup> of May 2022.
- Seminar: 4<sup>th</sup> and 5<sup>th</sup> May 2022.

**Procedure to submit an abstract, a paper and to register**

Authors wishing to present a paper are invited to submit a short abstract (max. 400 words) and author' names online at <https://easychair.org/conferences/?conf=esreda60seminar> , before the 15<sup>th</sup> of January.

The full papers should address before the 30<sup>th</sup> of March:

- Objectives;
- Relevance for the Seminar;
- Novelty;
- Methods and findings.

The language of the seminar is English.

Template and registration details will be also available on [ESReDA website](#) and [EasyChair](#).

**Registration and Seminar Fee**

Registration will be accepted until April, 15th 2022. A registration form and information package for the venue will be made available on the ESReDA website.

The fees for registration are 300 €. Fees are to be paid by bank transfer to ESReDA

Holder: ESReDA

Bank: BNP Paribas Fortis Bank, Boulevard Jamar 1 D, 1060 Brussels, Belgium

IBAN: BE69 0012 3728 1678

BIC: GEBABEBB

Subject : Registration in the 60th ESReDA Seminar

**Fee waiver:**

- Fees will be waived for one speaker per accepted paper.

- The participation fee for ESReDA members are taken in charge by the Seminar (in the limit of 3 participants).

If there are any question participants please e-mail: [r.remenyte-prescott@nottingham.ac.uk](mailto:r.remenyte-prescott@nottingham.ac.uk)

## **About Grenoble Alpes University and the cross-disciplinary project Risk@UGA**

The Risk@UGA project aims to develop interdisciplinarity and scientific innovation in the field of risk and disaster management in regions that are vulnerable due to a strong interdependence of hazards of human, natural or technological origin. In addition to the Grenoble basin, the project focuses on vulnerable territories in the region of Beirut in Lebanon, Port-au-Prince in Haiti, Peru and Nepal. The project also aims to propose a risk institute within Univ. Grenoble Alpes. See <https://risk.univ-grenoble-alpes.fr/>

There are many hotels in Grenoble. More information will be provided soon regarding the suggested hotels where you can book your stay.

## **About European Safety, Reliability & Data Association (ESReDA)**

European Safety, Reliability & Data Association (ESReDA) is a European Association established in 1992 to promote research, application and training in Reliability, Availability, Maintainability and Safety (RAMS). The Association provides a forum for the exchange of information, data and current research in Safety and Reliability.

ESReDA membership is open to organisations, privates or governmental institutes, industry researchers and consultants, who are active in the field of Safety and Reliability. Membership fees are currently 1000 EURO for organisations and 500 EURO for universities and individual members. Special sponsoring or associate membership is also available.

For more information on ESReDA, contact: ESReDA General Secretary, Dr. Inga Šarūnienė, Senior Researcher at Lithuanian Energy Institute, [Inga.Saruniene@lei.lt](mailto:Inga.Saruniene@lei.lt)

ESReDA address: European Safety, Reliability & Data Association, an International Non-Profit Scientific Association under the Belgium law (June 27, 1921, Title III). Headquarter: ESReDA, rue Gachard 88 Bte 14, B-1050 Bruxelles, Belgium, Siret:E00005802.

Any interested party is welcome to contribute to ESReDA project groups.

## **ESReDA Project Group on Resilience Engineering and Modelling of Networked Infrastructure**

This project group was launched in autumn 2018 to work for 3 years to address aspects of Resilience of Networked Infrastructure. The project group meets twice a year. It gathers industry experts, researchers and consultants from: University of Nottingham (UK), University of Edinburgh (UK), Eindhoven University of Technology (Netherlands), Université Grenoble Alpes, CNRS, Grenoble INP, GIPSA-lab (France), Université Grenoble Alpes, INRAE, ETNA, (France), Loughborough University (UK), Kaunas University of Technology (Lithuania), European Commission, Joint Research Centre – Ispra (Italy), British Geological Society (UK), Norwegian University of Science and Technology (Norway), Burapha University (Thailand), Tallinn University of Technology (Estonia), Karlsruhe Institute of Technology - KIT (Germany), University of Arkansas (USA), Wrocław University of Science and Technology (Poland), ETH Zurich (Switzerland), Center for Digital Safety & Security, Austrian Institute of Technology (Austria), Riga Technical University (Latvia), Tongji University, Shanghai (China), University of Zaragoza (Spain). We will issue the book in 2021. This PG is due to finish in 2022.