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Risks and Resilience of Complex Systems (RRSC)

Friday, 29 May 2026 09:00 (1 hour)

At CentraleSupélec, research on resilience is conducted by the Laboratoire de Génie Industriel (LGI) and its research team R3 (Risk Resilience Reliability). Today, resilience has become a key issue for all so-called critical infrastructures. Although each sector has its own specific characteristics, the methodological frameworks used to study resilience appear to be very similar. This opens the possibility for synergies and cross-sector reflections among stakeholders.
Thus, although relatively young, the R3 team (created in 2009) has grown significantly in recent years and now maintains major national, international, academic, and industrial partnerships in the following sectors: energy, telecommunications, transportation, space infrastructures, healthcare systems, manufacturing industry, and smart cities.
A sign of this methodological cross-disciplinarity is the Chair on Risks and Resilience of Complex Systems (RRSC), founded in 2009 with EDF. The chair was renewed in 2019 with the addition of two new partners, Orange and SNCF, and in 2024 with NaTran and RTE. The chair's objective today is to study the resilience of critical energy, transport, and telecommunications infrastructures, focusing on their interdependencies and on the challenges associated with climate change and geopolitical risks.
In order to be as comprehensive as possible, the ambition is to address all phases of the resilience process: prevention , degradation and crisis, restoration and recovery, and learning.

In the scientific project of the chair, 3 main areas have been defined:
1. Systems Modelling for Risk Resilience and Reliability
2. Decision Optimization for Risk Resilience and Reliability
3. Environmental and Geopolitical Challenges of interdependent infrastructures

In this presentation, after a brief overview of the chair scientific project, we will focus on some selected works achieved in areas 1 and 2 and 3 that may be of interest for the audience.

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Session Classification: Keynote