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European Safety and Reliability Conference

[esrel2021.org](http://esrel2021.org)

**CALL FOR ABSTRACTS**

**Special session on**  
***Risk management for the design,  
construction and operation of tunnels***

**Description**

Land transport keeps by far leading the transportation sector. In view of that, road and rail infrastructure, and especially its key elements, one of which is tunnels, should guarantee users a high level of safety. Tunnels are used to overcome physical barriers such as mountains, existing roadways and railways or even ease traffic congestion when they are developed within an urban environment. Despite the benefits that they offer, tunnels are difficult to build, maintain and operate. During construction, the engineering team has to overcome challenges such as limited information on site conditions, geotechnical uncertainties, as well as seismic activity. But also, during operation accidents can have dramatical consequences. Although in some countries the accident rate within tunnels is lower, accident consequences in tunnels can be much more destructive compared to the rest of the road sections owing to their closed environment. In particular, fire accidents are the biggest risk during tunnels' operation and has led to huge number of casualties and infrastructure damages in the past.

**Motivation**

Despite the significant progress in developing robust risk analysis methods and techniques over the last few decades, there is still much room for improvement and optimization regarding risk analysis and safety of tunnels during design, construction, and operation. Concepts such as vision zero for road transport combined with the fact that tunnels have rapidly increased worldwide the last ten years motivate researchers for further studies in this area.

## Objective

This special issue aims to address the following objectives:

- Provide information regarding the current safety level of tunnels
- Reveal cases of best practices regarding design, construction and operation of tunnels
- Expose new methods, processes and tools regarding risk assessment and safety for tunnels
- Propose sophisticated methods and tools for educating tunnel users and tunnel managers
- Safety and innovation – two sides of the same coin or in sharp contrast?

## Organizers

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