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European Safety and Reliability Conference

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

CALL FOR ABSTRACTS

## *Risk Analysis and Safety in Standardization*

### Description

This special session was already approved in ESREL 2018 and initially proposed to promote discussion/emerging problems on standardization in the field of Safety of Machinery Directive, 5 articles was submitted and revised by the proposers. In ESREL 20219 the organizer of the Special Session Landi and Moedden, as suggested by the German organizing committee of ESREL 2019, "open" to a more general discussion on emerging problems is standardization on safety. More than 25 articles were submitted and, finally 14 presented in 3 different subsections with different chairs were accepted. One session was "driven by" machine tools problems, the second by general emerging problems on Machine Directive, the third a more general discussion on standardization on tunnel safety and transportation. Due to pandemic the ESREL 2020 initially approved the session but the proposers were not involved in the evaluation process, so we cannot give to the organizing committee any number of the last ESREL 2020. In ESREL 2020 this session was a "regular" session not a special one.

### Motivation

Admittedly, theoretical risk assessment starts in the hypothetical "what if" domain, where theoretical risk can be logically scaled in cause and effect (at the most), but it often cannot be calculated accurately as regards absolute values, since assumptions have to be made always for the situation at hand. Thus, in risk estimations, the necessarily theoretical model-based approach is sensible (probabilities), but it needs to be checked by empirical data (relative frequencies), too.

On the other side, verifiably founded probabilities, such as e.g. real findings in the operational field and logically deduced probability estimations are better than not scalable subjective good feeling, speculation and pure hypothetical assumption. Isn't it obvious that the real risk actually can be measured precisely, e.g. in terms of the yearly accident statistics, i.e. in terms of objective numbers? For the sake of operator safety of course, only the real risk reduction matters: it is a combination of a) reducing the magnitudes of consequences of possible failures and, b) simultaneously diminishing the frequencies of such consequences.

## Objective

Therefore, the new special session tries to support plausible risk considerations connecting theory and reality. This is also a goal of the special session "Risk analysis and safety in standardization", because unfortunately, in the discussions of safety standardization experts, it seems to be the most important goal to establish a formal procedure, which could be suitable to defend against possible product liability suits. Furthermore, a majority of experts prefers simplistic "worst case possibility" models rather than probabilistically scaled realistic methods. Reasonable cause and effect relations do not seem to be important to the majority of experts, neither is a plausible scaling of effects. Corresponding safety designs may be "legally safe", but their risks to the operators are presumably not at all "as low as reasonably practicable" (ALARP). Only if the decisions that form a safety design are plausibly justified (i.e. objectively), a risk in the ALARP-range can be achieved. Therefore, an understanding of the design requirements is all-important.

The aim of the special session is to promote bridging/discussion between academic research and industrial state of the art solutions proposed in the field of standardization of safety related topics.

## Organizer

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Both the organizer were in the technical committee of ESREL 2019 and 2020.

## List of possible reviewers (some of them already reviewed in past ESRELS)

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