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ROSAS CENTER FRIBOURG

A Cutting-edge Railway Laboratory

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ROSAS's involvement in railways is at an exciting phase of its development, with the aim of working on the safety of traffic, installations, vehicles and their components, as well as on risk assessment and support for safety-related projects.

ROSAS was fortunate enough to recently join forces with an investigative laboratory developed near Bern in 2013 (DESM) by Juerg Suter, who worked for many years at the Federal Office of Transport. The laboratory is currently being set up as a new center of competence. For the first time, we are using train simulators not only to train drivers, but also, for the first time, to research human responsibility in train incidents and accidents in ways that cannot be done in real-life situations. These simulators make it possible to carry out in-depth incident case studies, using the systems model developed for air transport. "Ten per cent of incidents have technical causes. Until now, there weren't many options for analyzing the 90% of incidents relating to human error," explains Suter.

This is now feasible with the new facility, where researchers will be integrating driving simulation with simulated train management. "The management simulator has been provided by the SBB/CFF; it represents 30km of train tracks with working railway points, accurately modelled to the last detail. The combination of the two systems means we can analyze an incident in all its complexity, mirroring the roles of signaling agents and drivers."

This laboratory is designed to support railway automation which is due to bring major modifications for train drivers. So, for example, in the event of an accident, it's important to understand the behavioral changes that occur when drivers move from a manual system to an automatic one.

The laboratory works closely with universities, Swiss and foreign railway companies, transport authorities, infrastructure manufacturers and manufacturers of safety systems and trains.

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