



“Numerical Reconstitution of the Zoufftgen Accident”

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Abstract:

On Wednesday, 11th, October 2006, a fret train and a passenger train collided on the border between France and Luxemburg. Both drivers were killed and with them 10 other persons, 9 occupants of the passenger train and one worker along the track. The collision speed of both trains were estimated to be around 80 km/h, meaning 160 km/h relative speed.

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The fret train was hauled by an Alstom locomotive, a Locofret equipped with lateral buffers and buffer supports, both dedicated to energy absorption. The passenger train was a double-deck TER2NNG with 3-coaches, also manufactured by Alstom, and fitted with energy absorption devices in the front and between the coaches. According to the investigations after collision, the absorbing devices have worked properly and overriding occurred between the 2 first vehicles.

As both FE models were existing within the company, it was not a huge amount of work to try to reconstitute numerically the collision, especially the overriding of the locomotive over the passenger end-trailer.

After several attempts, the right behaviour has been found numerically. The reason for the overriding is linked with the relative position and specific design of both first vehicles.

Keywords:

- FE-Simulation
- Safety
- Accident Reconstruction