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MULTISCALE MODELLING FOR BOUNDARY ANALYSIS OF BOGIE SUPPORT

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Summary: As transport policies continue to evolve in response to growing environmental concerns, rail transport is becoming a fundamental pillar of sustainable mobility. With freight volumes and operating speeds expected to rise, the railway sector must adapt to meet increasing demands efficiently. The European Green Deal sets a bold objective of doubling the volume of goods transported by rail by 2050, highlighting the urgent need for optimized, high-performance freight vehicles. Achieving this goal requires advancements in wagon design, materials, reliability, and sustainability in rail freight transport. The structure of a freight wagon presents inherent complexity. In the case of the Sggrs(s) 80’ wagon, the interaction between the car body, the bogie, and the Talbot articulation joint is of key importance. This work will present a detailed study of the interaction between the car body and the bogie, employing a refined submodelling approach to analyse the rotational constraints that must be imposed on the car body. Boundary limits for the restrictions of movement will be defined.

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