



## Railway Dynamics and Maintenance

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### Message from the Guest Editor

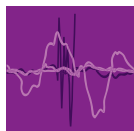
Dear Colleagues,

Over the last decade, European railway network capacity has experienced a rapid increase, all with the purpose of fulfilling the requirements of the White Paper published by the European Commission, which requested a switch of passenger and freight transportation from road to rail to protect the environment by reducing CO<sub>2</sub> emissions and energy savings. By increasing network capacity, the railway tracks that are currently installed and in use are being expected to withstand more than what they were designed for in terms of axle load, train speed, and frequency of passages. As a result, more efficient, effective, and sustainable maintenance is required. Additionally, it is becoming more urgent to conduct economic-based widespread research for cost-effective improvement of rail transport to come up with rehabilitation strategies. To achieve these objectives, which are not only restricted to European network problems, it is necessary to have:

Reliable dynamic models of railway tracks providing usable numerical results within a reasonable computational time, with acceptable precision and accounting for uncertainty of mechanical properties of railway track components;

- Effective solutions for vibration mitigation;
- Sustainable solutions for transition zones;
- Efficient methods for monitored data analysis to identify critical regions;
- Reliable performance indicators of railway structure to measure the added value of rehabilitation interventions;





## Editor-in-Chief

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## Message from the Editor-in-Chief

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