



Synopsis

Vehicle-Track System Dynamics and Long Term Behaviour



Vehicle-track system related damage, such as track structure degradation, rolling contact fatigue and wear is generally associated with increased operational demands such as higher axle loads, higher speeds and higher traction. It is thus important to understand the influence of these demands on the dynamic performance and long-term system behaviour.

- Structural failure of vehicle body, bogie and suspension elements
- Wheel surface and sub-surface Rolling Contact Fatigue, wheel profile wear and circumferential wheel tread wear
- Rail Rolling Contact Fatigue, transverse rail wear, longitudinal rail wear and weld deformation
- Track super-structure and sub-structure degradation

A key element in reducing operational and maintenance costs is to conduct continuous monitoring of all wear, stress, operational, dynamic-induced and derailment-related phenomena. Furthermore, to minimise costs it is important to find an optimal balance between the operational demands and essential maintenance interventions within the constraints provided by the system design.

Institute of Railway Technology

Building 31, 17 College Walk
Monash University Clayton Campus
Victoria 3800, Australia
PO Box 31, Monash University,
Victoria 3800, Australia
Phone: +61 3 9905 1880
Fax: +61 3 9905 1972
Email: irt.enquiries@monash.edu

www.irt.monash.edu



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Institute of Railway Technology

presents the



Stephen Marich Annual Lecture in Railway Engineering

Wednesday, 14 March 2018
at
The Pavilion
Arts Centre Melbourne



Stephen Marich Annual Lecture in Railway Engineering

About the lecture

The Stephen Marich Annual Lecture in Railway Engineering is organised by the Institute of Railway Technology, the leading track and vehicle railway research centre in Australia. This annual railway industry event honours the 40 year contribution of Dr Stephen Marich to the industry. Dr Marich is one of the pioneers of heavy haul railway research in Australia and has been directly involved in the development and implementation of a range of wheel/rail management strategies and track designs across all sectors of the rail industry. He has authored and co-authored over 90 technical papers, and two postgraduate courses in railway engineering. In 2000, Dr Marich received the Railway Technical Society of Australasia Individual Award in 2000 and is the only Australian inducted into the International Heavy Haul Association Hall of Fame.

The annual lecture series will contribute to the advancement of the railway industry by sharing technical knowledge from leading global experts in the field. The event is endorsed by the Railway Technical Society of Australasia (RTSA).

Tonight's lecture will be delivered by Dr Robert Fröhling and his keynote address will be entitled "Vehicle-Track System Dynamics and Long Term Behaviour".



About Dr Robert Fröhling



Dr. Fröhling is a registered Professional Engineer with 36 years of railway engineering experience. He is a subject matter expert in rail vehicle system dynamics, vehicle/track interaction, wheel/rail interaction, bogie technology and structural mechanics. To date he has published and/or presented over 60 technical papers internationally.

As a Principal Engineer within the Technology Management Department of Transnet Freight Rail, he has the responsibility for the following core Mechanical Railway Technologies: Railway Vehicle System Dynamics, Wheel/Rail Interaction, Bogie Technology as well as Locomotive and Wagon Mechanical Design Integrity.

Robert is currently a Member of the Editorial Board of the "Vehicle System Dynamics International Journal of Vehicle Mechanics and Mobility" and the Editorial Board of the "Journal of Rail and Rapid Transit, Part F of the Proceedings of the Institute of Mechanical Engineers".

Robert has a Ph.D (Engineering) from University of Pretoria and conducts regular lectures on Multi-Disciplinary Concepts in Railway Engineering, Wheel/Rail Interaction, Railway Infrastructure Maintenance Management and Railway Safety Investigation for the University of Pretoria and internationally.

Robert is a fellow of the South African Academy of Engineering (SAAE) and registered with the Engineering Council of South Africa (ECSA) as a Professional Engineer.