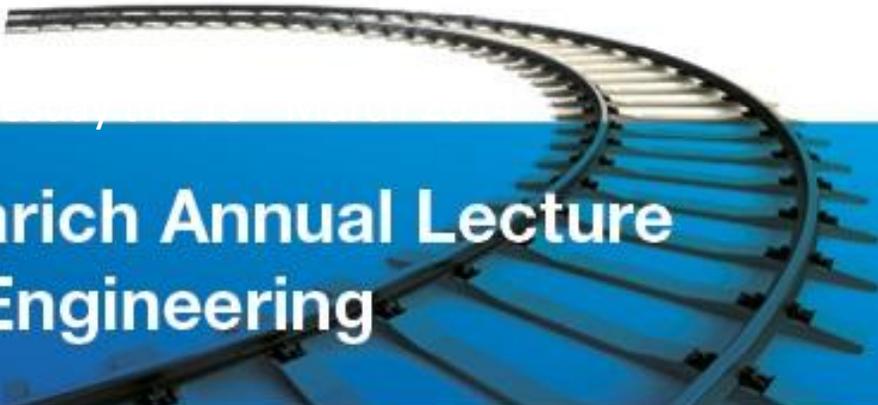


Institute of Railway Technology

presents the



Stephen Marich Annual Lecture in Railway Engineering

Wednesday, 4 March 2015

at

**The ANZ Pavilion, Arts Center
Melbourne, Australia**

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.

Dr Marich 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 authored two postgraduate courses in railway engineering, Stephen received the Railway Technical Society of Australasia Individual Award in 2000, and only Australian inducted into the International Heavy Haul Association Hall of Fame.

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

Tonight's lecture will be delivered by Harry Tournay and his keynote address will be entitled "Strategies to Counter Wheel/Rail Rolling Contact Fatigue in Heavy Haul Service".

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About Mr Harry Tournay



Harry Tournay has been involved in railway research for over 44 years. He is currently conducting research at the Transportation Technology Center Inc. (TTCI), Pueblo, Colorado, USA as a Senior Scientist in the fields of mechanical systems, components and vehicle & track interaction. Harry has been developing, inter alia, track-friendly bogie designs and further research on wheel & rail and vehicle & track interaction including the root causes for wheel and rail rolling contact fatigue (RCF). Harry has currently designed and commissioned a so-called rolling contact fatigue simulator to replicate and quantify, under controlled conditions, both surface and sub-surface wheel and rail fatigue damage encountered in heavy haul service.

Harry was a director of the International Heavy Haul Association (IHHA), representing Southern Africa from 1999 to 2002 and was inducted into the International Heavy Haul Association Hall of Fame. Harry is the author of over 30 international papers and contributor to the two IHHA handbooks on wheel & rail interaction and the IHHA handbook on track maintenance. He has also contributed to several books on wheel and rail interface.

“Harry is an acknowledged expert in heavy haul rail matters, particularly involving wheel and rail interaction. He has published many IHHA papers ranging from car and vehicle suspension design to wheel & rail interaction. He is an author of a chapter in a book on wheel & rail interaction published by the International Heavy Haul Association and has lectured on the subject of rail vehicle suspension design and wheel/rail interaction at the University of Pretoria, South Africa.”

IHHA web site.



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Strategies to Counter Wheel / Rail Rolling Contact Fatigue in Heavy Haul Service

The primary subject matter of this presentation is Rolling contact fatigue (RCF) in wheel & rail interface. RCF is estimated to cost the North American railroad industry approximately US \$800m annually.

The topics will be discussed include:

- Wheel and rail damage modes, presumed root causes and consequences
- Current strategies in North America to reduce & eliminate RCF including improved:
 - Vehicle (bogie) and track designs
 - Wheel and rail materials
 - Wheel / rail lubrication and friction control (3rd body management)
- Proposed way forward:
 - Analytical verification methods
 - Experimental verifications (rolling load tests) including verification of creep forces and wheel / rail profile design,
 - Simulation of damage initiation and propagation including the role of wheel temperatures and ingress of ice and fluids
- Current maintenance methods:
 - Wheel and rail maintenance
 - Gage face and top-of-rail friction control