



ACRI Rail Knowledge Bank update

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Themed issue: IHHA 2015 11th conference: *Operational Excellence*, Perth, Western Australia

Below is a random selection of conference papers. To view all papers and poster presentations, on the home page under *Browse by Conference*, click on folder IHHA/2015.

[Allowable wheel loads, crack sizes and inspection intervals to prevent rail breaks](#)

The current study focuses on wheel load management with the aim to establish wheel load monitoring and mitigation actions (in terms of limits on allowable wheel defects) that minimize traffic disruptions.

[Assessing the impact of increased axle loads using continuously measured performance data](#)

This paper highlights some of the latest developments in the use of continuously

measured performance data collected from both locomotives and wagons with differing axle loads. In particular it looks at the variations of the dynamic wheel loads and the dynamic impact factors with speed.

[Communications based train control applications for international heavy haul railways](#)

This paper provides an update on U.S. Positive Train Control (PTC) implementation, and discusses how the ITC specifications can be used to support international heavy haul railway CBTC applications.

[Expanded use and evaluation of autonomous vehicle/track interaction equipment](#)

This paper will present the general use of V/TI Monitors in the industry and how information is being leveraged by railroads in North America to improve track safety.

[High performance car/wagon couplings and castings](#)

Transportation Technology Center, Inc. has developed a digital E-type coupler geometry that can be combined with 3-dimensional scanning technologies to help railroads and manufacturers alike. Physical gages are in development for use in production and field environments. Current versions of physical gages are being used to collect dimensions in critical areas to report on the health of the industry's car/wagon fleet.

[Improving track friendliness of rolling stock](#)

In this paper the results are presented of an investigation into the optimisation of wheelset yaw rotation rigidity in trains, more specifically the wheelset guiding by the radial arm bush. The selected approach modifies the suspension design between the wheelset and bogie frame by introduction of frequency dependency. This paper addresses the potential of this design change to reduce wear and tear at the wheelrail interface, thus enhancing the so-called 'track-friendliness' of trains.

[Research and application of micro-alloying steel axle used for heavy axle load rolling stock](#)

The microstructure analysis and fatigue test of a new heavy haul railway truck axle material called LZ45CrV show that the micro-alloying elements play an important role of fine grain strengthening and precipitation strengthening, the microstructure of axle steel is improved significantly, and the fatigue limit also has been significantly improved.

[Retrofitting an existing ballast deck rail bridge with a ballastless deck in an operational coal rail environment](#)

This paper outlines various ballastless track systems that have been implemented both locally in Australia and internationally. It also discusses process and issues involved in retrofitting the existing Cooling Water Channel Bridge with a suitable ballastless track system. After a rigorous review of the researched options and assessment of the existing bridge conditions, the precast floating track slab was chosen as the most adequate solution.

[Rio Tinto heavy haul rail fatality prevention program](#)

Rio Tinto Iron Ore (WA) Railways Division has strengthened its approach to understanding fatality risk and engaged a larger portion of the division in ensuring controls of fatality risk are in place and effective. Risk assessments provide information on fatality risks and potential scenarios and controls of these risks are implemented or confirmed to be in place.

[Towards perfected rail maintenance: combining routine and long-term research activities](#)

In 2007 the new grinding strategy with "Malmbanan", Europe's only heavy-haul railway,

has been presented at the IHHA-conference in Kiruna; four years later an update was given. The latest findings and further development is presented in this article. The combination of the once fixed routine grinding operations with the research activities resulted in a consistently good rail surface situation and revealed further insight in the complex matter of wheel-rail interaction.

Transport management

What has the Australasian rail industry been talking about? An [infographic](#) has been produced of Australian rail conference topics 2012-2015.



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[National Interest Services supporting an informed land transport community](#)

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