

Special issue on 'Contact Mechanics 2018'

The Eleventh International Conference on Contact Mechanics and Wear of Rail/Wheels Systems, CM2018, was held in Delft, The Netherlands, on 24-27 September 2018. The conference was organised and hosted by TU Delft and was attended by 213 delegates in total, coming from 18 countries, the largest groups being from China, United Kingdom, Sweden, Japan and Australia. Approximately 60% of the delegates were from universities and research institutes whilst the remaining 40% were industry representatives, including infrastructure managers, train operators, maintenance providers, rolling stock manufacturing companies and consultancies. The conference featured three keynote lectures, 112 oral presentations and 48 poster presentations.

This special issue contains extended versions of selected papers from the conference addressing subjects that are most relevant to the readers of the *Journal of Rail and Rapid Transit*. Two companion special issues from the conference are being published on journals "Wear" and "Tribology: Materials, Surfaces and Interfaces". The issue consists of seven papers, all of which have been peer reviewed by independent reviewers.

The paper by Grassie and the one by Tanaka and Miwa both address the problem of managing in an economically efficient way the removal of rail corrugation by means of grinding and propose practical methods together with examples of successful application in urban railway networks. The paper by Chen et al. also addresses rail corrugation, comparing field measurements and predictions from a finite element model for three different test sites.

The paper by Vickerstaff, Bevan and Boyacioglu reports on approaches to predictive management of the wheel/rail interface in use in London underground. Site observations of different rolling contact fatigue problems are discussed, along with the solutions proposed to manage them.

The paper by Six et al. presents a methodology to assess a railway running gear with respect to rolling contact fatigue of wheels and rails and represents an instructive example of how Multi-Body Systems simulation can be used to optimise the vehicle's behaviour in regard to rolling contact fatigue.

The paper by Hawksbee, Tucker and Burstow investigates the occurrence of plastic deformation of rails in short-radius curves using a combination of multibody simulation and finite element analysis, providing another useful example of how modern simulation techniques can be used to address typical problems related with the management of the wheel/rail interface.

Finally, the paper by Meierhofer et al. reports on vehicle test runs performed under different climate conditions, highlighting the effect of weather conditions and fallen leaves on wheel/rail contact forces. This investigation is particularly useful in view of mitigating problems caused by leaves falling on the rails and causing low adhesion of the wheels.

I believe the papers published in this issue altogether provide an interesting overview of the present state-of-the art regarding the management of the wheel/rail interface and propose useful practical solutions to some typical problems of railway systems based on the combination of experience, advanced numerical simulation techniques and accurate models of wheel/rail surface damage. I therefore hope readers will find in this special issue useful information and inspiration for their future research work.

As a final note, I would like to thank all the authors for their contributions to this special issue and the reviewers for their insights and recommendations that greatly helped the authors to enhance their contributions. I would also like to thank the Editor of the Journal of Rail and Rapid Transit, Professor Simon Iwnicki, and the journal's editorial team for their commitment on the publication of this special issue.

Stefano Bruni

Guest Editor - Politecnico di Milano, Italy