Welcome to the first Future Mobility newsletter. Newcastle University is fortunate to have excellent academics and researchers with international reputations for transport research as groups and individuals with a multi-modal multi-disciplinary research portfolio which includes substantial PGR activity. There is a wide range of expertise from transport technology and engineering-related activities to user behaviour analysis, the environment and logistics. Within the new School of Engineering School there was a strong desire for the transport and transport related researchers to work together, the first formal step in this initiative was to merge TORG and NewRail into the Future Mobility Group.

We are also linking with transport and transport related University bodies, both those that are explicitly transport (Marine Technology, Design Unit, Automotive Propulsion Centre etc.) and those related disciplines that form the underpinning eco-system of the ‘added value’ of transport related research, such as: computing science, big data, propulsion, behavioural economics, energy, environment, health, ageing, sustainability, sensing, etc.

Through the UK Rail Research and Innovation Network UK and Newcastle being appointed the Centre of Excellence for Rolling Stock there is £2m to invest in testing facilities over the next 2 years. Future Mobility has excellent stakeholder engagement from Government, Professor Phil Blythe is the Department for Transport Chief Scientist. We also work with local councils, LEPs, our Alumni and very importantly industry. Strong industrial engagement is in place e.g. Jaguar Land Rover, Nissan, Siemens, Rolls Royce, Nexus, Hitachi and this can be further expanded.

Our Vision is to put Newcastle at the heart of the mobility challenge and promote the University as the leading mobility research team with the highest level of expertise in both passenger and freight. Our aim is to promote Newcastle as Europe’s leading Mobility University.”
The Transport Research Arena 2018 of 16-19 April 2018 in Vienna. Under the motto “A Digital Era for Transport”, the TRA combined the 4-day conference programme with an exhibition, live demonstrations, networking events and award ceremonies. Its aim was to provide an arena for high level representatives from research, industry, public administration and politics for open discussions and various additional activities.

With the SETRIS project coming to an end, the SETRIS final event took place in the form of a Strategic Session - Towards a Truly Integrated Transport System, on Monday 16th April, the first day of the TRA event. Prof Robinson, SETRIS coordinator & ECTRI President, was a keynote speaker, presenting the main project results, together with Maja Bakran, Deputy Director-General, DG Mobility and Transport. These presentations were followed by a panel discussion with all ETPs representatives: Jean-Luc Di Paola-Galloni, Corporate Vice-President for Sustainability and External Affairs, Valeo, ERTRAC; Andy Doherty, Chief Rail Technology Officer, Network Rail, ERRAC; Nik Delmeire, Secretary General, European Shippers’ Council, ALICE; Christoph Schneider, Senior Airside Masterplanner, Munich Airport, ACARE; Christophe Tytgat, Secretary General, SEA Europe, WATERBORNE. The SETRIS final brochure published in April 2018 is the result of collaborative efforts between the 5 transport related ETPs towards a truly integrated transport system over the last 3 years.

At TRA2018 there was an Invited Session « Modal Synergies for Future Mobility », on Tuesday 17th. This session was organised by Dr Roberto Palacin, UNEW, and Cristina Hernandez, UITP (SETRIS WP1) in partnership with the Mobility4EU project. Based on the SETRIS outcomes in WP1 Connecting passengers for seamless travel and sustainable mobility Seamless passengers, the session defined the next steps for a real intermodal and user-centred transport system.

The focus was on three topics:

- Decarbonisation;
- Shared services; and
- Information and automation.

It was hosted in a world café style to open it up for extra discussions. Outcomes of these discussions included the view that there is a need to develop credible business models to benefit all actors, testing and regulatory frameworks that recognise the innovative nature of the technologies developed (e.g. automation), coordinated efforts between experts from different modes and maximising the possibilities of ambient information provision for more inclusive services.

Roberto has also had the privilege to Chair the Rail committees over the past 18 months or so, selecting the best young and senior researchers amongst the hundreds of applications received as part of the VISIONS competition. Commissioner Bulc and Mr Carlo Borghini, executive Director of the Shift2Rail JU, who kindly sponsored the rail competition presented the awards to the winners of the “your researcher” competition during the Plenary Session while Transport Director at the EC’s DG Research Mrs Clara de la Torre presented the senior awards during the gala dinner at Vienna’s impressive Town Hall.

Also at TRA 2018 Professor Mark Robinson, as ECTRI President, was honoured to be asked to be the Rapporteur of the Conference at the closing session on Thursday 19th May. He had the task of summing up 4 days of conference including statistics, highlights and recommendations in a short presentation.

We hope you enjoy this first newsletter.
FAIR Station project at the TRA2018

The EU FAIR Stations project (2017 – 2019) promoted its work through presentations and a video clip at the EC Shift2Rail stand.

In addition, the project made a poster presentation at the Market Place entitled “Factors to consider in the Design of Future Secure and Accessible Rail Stations”. The project Technical Coordinator, Dr Emmanuel Matsika active in Strategic transport research made the presentations and expressed pleasure that the project had great visibility at the largest transport conference in Europe.

The FAIR Stations project aims at developing solutions for improved passenger flow within the station, and at the platform train interface (PTI); putting customer satisfaction, and security & safety at the centre of the station design. Special emphasis was made to address the needs of Persons with Reduced Mobility (PRMs). He also provided a presentation entitled “Analytical Approach to Determining Factors that Influence Wheelchair Occupant Kinematics during a Railway Vehicle Crash”. This is part of his on-going research in rail vehicle safety and design for accessibility. The scientific paper has been published in the conference proceedings under the topic Safe, Secure and Resilient Transport Systems.

Dr Cristian Ulianov, coordinator of the INNOWAG S2R project also had a presence at TRA2018. Firstly, two papers were presented as a poster session concerning:

“Integrated concept of lightweight wagon with freight condition monitoring capabilities and predictive maintenance solutions” in session ST16: 6.2 Systems and Technologies towards the Physical Internet.

Presented on the 17th April 2018; and “Rail freight research: How market trends and customers’ needs drive technology innovation” in session ST35: 6.1 Intermodal Freight Transport and Synchronodality presented on 18th April 2018.

Also, on the 18th April 2018 in parallel to TRA was the Shift Freight to Rail event which was an opportunity to present preliminary and final results of the Shift2Rail projects focussed on innovating the freight railways ecosystem in Europe.

The INNOWAG project is one of eight ongoing projects dedicated to the freight sector (IP5). INNOWAG presented their preliminary outcomes in areas such as long trains, obstacle detection, wagon design, real time management and automated operations.


For more information about the project or information about the research in vehicle safety, and accessibility contact: emmanuel.matsika@ncl.ac.uk
NOVELOG Project represented at the CIVITAS Urban Freight Conference

The European Commission is supporting research approaching the negative impacts of freight transport and aim to find innovative solutions that satisfy the needs and interests of all actors. In this context, the NOVELOG project one of four European research projects of the CIVITAS network presented their approach for cleaner urban freight transport at a joint final conference in Brussels on the 23 and 24 April 2018.

At the final conference, the NOVELOG project coordinator commented on the added value of the project. Georgia Ayfantopoulou, the coordinator of NOVELOG stated: NOVELOG generated knowledge for urban freight transport planning and delivered tools for supporting multi-stakeholders’ cooperation in implementing innovative city logistics solutions and adopting cooperative business models in UFT.

For further information please contact: tom.zunder@ncl.ac.uk

New Projects

Professor Elisabetta Cherchi is part of a consortium that has been successful in the £9.8m e4Future project recently announced by Department for Business, Energy and Industrial Strategy (BEIS) minister Richard Harrington. The project is part of a £30 million investment from BEIS - working with the Office for Low Emission Vehicles and Innovate UK to fund 21 projects on V2G. e4Future will be led by Nissan with the collaboration of Newcastle University, Imperial College London, Northern Powergrid, UK Power Networks, National Grid and Nuvve. You can read further information on the Newcastle University press release and the Nissan press release.

For further information, please contact: elisabetta.cherchi@ncl.ac.uk

Human Capital, SHIFT2RAIL project starts

Dr Dewan Islam, is working on an S2R project called Human Capital that focusses on the need in railway transport for appropriate staff with new and advanced skills. This project will deliver better skill and forecasts and skill gap analyses and recommendations for the development of new, better training for railway staff and additional relevant, knowledge transfer from other non-rail sectors. Current research is looking at reducing the skills gap for the railway sector.

For further information, please contact: dewan.islam@ncl.ac.uk

A new project strengthening our collaboration with Thailand has started.

MetroExchange is a Thai rail engineering education and research improvement by exchange of good practice in metro operations in Thailand and in the UK. The project aims to improve rail engineering education and research in Thailand by focusing on the exchange of good practice in assessment of metro operations in the UK and in Thailand conducted in collaboration between academia and industry. This will be achieved by working in close collaboration between two universities (Mahidol University and Newcastle University) and two metros (BTS and TW Metro) who will facilitate performance benchmarking and skills exchange activities.

For further information, please contact: marin.marinov@ncl.ac.uk

A new study on waste management and logistics in Rio de Janeiro

A study on Waste Management and Logistics funded by the CLACS (Centre for Latin American and Caribbean Studies) Mobility Fund Awards is being organised.

The aim of this study is to better understand the Brazilian National Plan set in 2008 to deal with solid waste. The aim is to create a long-lasting cooperation in waste management with institutions from Brazil including our academic partner Universidade Federal de Rio de Janeiro (UFRJ). The focus is on identifying sustainable measures for waste handling in Brazil. These measures will cover all aspects of waste logistics, including collection, transport and sorting of solid waste as well as preparation of solid waste for recycling.

For further information, please contact: marin.marinov@ncl.ac.uk
International Recognition

Professor Elisabetta Cherchi
is the new Chair of the International Association of Travel Behaviour Research (IATBR) (from January 2018 to December 2019). The IATBR is an international organization of scholars, researchers, practitioners, consultants, and public agency professionals dedicated to the advancement of travel behaviour research. The organization aims to serve as a forum that brings together professionals from a wide range of disciplines interested in the study of the factors that influence activity and travel choices of people and businesses, the formulation of new computational and analytical modelling methods and approaches for forecasting activity-travel demand, and the analysis of the land use and transportation impacts of a wide range of socio-economic, public policy, and modal scenarios. The association was established in the early 1970’s to facilitate the exchange of information among researchers around the world with a governing Executive Board reflecting the international balance of interests in travel behaviour research.

For further information please contact: elisabetta.cherchi@newcastle.ac.uk

Network on Intelligent Urban Mobility and Accessibility Research to strengthen research and joint ventures between EU and Brazil

NIUMAR is a new collaborative project with Brazil funded by the INCOBRA programme. NIUMAR stands for “Network on Intelligent Urban Mobility and Accessibility Research” and will focus on increasing and enhancing Research & Innovation (R&I) Cooperation Activities between Brazil (BR) and European Union (EU) R&I actors in urban mobility and accessibility.

Led by Instituto Superior Técnico (IST), Portugal with Support from NewRail, Newcastle University, UK, Universidade Federal do Ceará, Brazil and Universidade Federal do Pernambuco, Brazil, the main objective of NIUMAR is to foster the urban mobility and accessibility research in Brazil and to promote sustainable cooperation between Brazilian and European researchers in this area.

For further information please contact: marin.marinov@ncl.ac.uk

PhDs Completed

Congratulations go to the following for the award of their PhD:

Jack Clarkson
“The effect of shared space on Attitudes and Behaviour”.
Supervised by Dr Neil Thorpe, Prof. Margaret Bell and Dr Paul Goodman.

Alexandr Rjabovs
“Performance shaping factors affecting driver safety-related behaviour in urban rail system: Tyne & Wear Metro case”.
Supervised by Prof. Mark Robinson and Dr Roberto Palacin.

Publications

Papers in journals:

- Aditjandra PT, Zunder TH. Exploring the relationship between urban freight demand and the purchasing behaviour of a University. European Transport Research Review 2018, 10(1), 1-12.
In the last week of April 2018, 33 students from the Newcastle Transport Planning MSc programme went on the annual field trip to Karlsruhe in Germany.

The Field Trip is an integral and compulsory part of the MSc programme. The purpose is to visit practical examples of the transport systems that have been studied throughout the course. It looks at examples of balanced transport policies in action. Students see examples of a range of transport systems and projects under construction, or in operation, learning about excellence to imitate, and problems to avoid. It is organised jointly with the PTV Group, whose headquarters are in Karlsruhe, as part of a long-standing partnership with Newcastle University.

The packed schedule for the week included lectures on Future Mobility, Autonomous Vehicles, Transport Research Projects, Road Safety Management, Karlsruhe’s Public Transport Kombilösung (Combined Solution), and the Modelling of Vehicle and Pedestrian Movement.

There were technical visits to the local tram control centre, the local University (Karlsruher Institut für Technologie) Transport Research Centre, the PTV Mobility Lab, the Stuttgart – Ulm Rail Project (Stuttgart 21) and the Mercedes-Benz Museum.

Practical work was undertaken in the form of a real road safety investigation, with presentations of improvements, and learning how to use and apply microsimulation software.

Teaching news

MSc Annual field trip to Karlsruhe

New People

Dr Petr Voltr

We are pleased to welcome Dr Petr Voltr to the Centre who has a background in the theory and design of railway vehicles. His PhD work focussed on advanced modelling of wheel-rail adhesion for the purpose of rail vehicle driving system dynamics.

His general research interests include dynamical behaviour of railway vehicles and modelling of their components and subsystems. Particularly, he has studied the wheel-rail contact mechanics, including transient effects such as rail conditioning and transient rolling – in theory as well as experiments on laboratory simulating the wheel-rail contact.

Currently, Petr is involved in the research projects ARSS - Active Radius Steering Suspension and INNOWAG - Innovative Monitoring and Predictive Maintenance Solutions on Lightweight Wagons. petr.voltr@ncl.ac.uk

Yuan Zhi

We are happy to welcome Yuan Zhi who is a visiting researcher from the School of Science, Jimei University, China. He will be working with Professor Mark Robinson and Dr Cristian Ulianov as a visiting scholar undertaking research in composite material theories with a view to transport applications in China. His current research focuses on selected railway related aspects for China Railway and Rolling Stock Company (CRRC). Working together we will investigate the research opportunities with Chinese enterprises and CRRC for application of composites.

Yuan Zhi will use his experience of cooperating with several well-known Chinese enterprises to promote the cooperation between Newcastle University and the Chinese enterprises raising the International reputation of our composites and Transport research. yuan.zhi@ncl.ac.uk

Dr Feng Liu

Dr Feng Liu’s research focuses on developing a high-speed method based on laser imaging and line-scan camera, for detecting rail surface defects. This will include the development of compatible algorithms for the selection and identification of laser-images, and further optimisation of online algorithms for speedup. The new laser-imaging method for rail fast inspection and real-time monitoring will consider an integrated fusion with other techniques based on different non-destructive methods (e.g., ultrasonic techniques, electromagnetic measurement techniques, and wireless sensor network).

Through his visit, Dr Feng Liu also aims to establish academic links and cultural exchange between the Guizhou Institute of Technology and Newcastle University.