

# TRA2020 - Book of abstracts 2020

List of 60 papers of which EARPA member companies have been involved



= 4 abstracts are marked with large yellow stars. These are the papers with a TRA VISIONS 2020 senior researcher winner as an author.

## 1.2 Scientific and technical session- Zero emission mobility

**(264) i-HeCoBatt: Intelligent Heating and Cooling solution for enhanced range EV Battery packs**

*Xavier Faure- CEA,*

**(272) EVC1000 – Integrated corner solution for innovative electric vehicles**

*Eric Armengaud – AVL*

**(1116) Developing roaming protocols for EV charging: Insights from the field**

*Mart van der Kam – TU/e*

Full paper: [https://www.researchgate.net/publication/339900323\\_Developing\\_roaming\\_protocols\\_for\\_EV\\_charging\\_Insights\\_from\\_the\\_field](https://www.researchgate.net/publication/339900323_Developing_roaming_protocols_for_EV_charging_Insights_from_the_field)

**(1172) Reducing pollutant emissions from existing passenger car fleet: generic approach to personalised recommendations**

*René van Gijlswijk – TNO (Den Haag)*

**(1081) Emission Control Measures in Swedish Ports**

*Peter Sjögren- RISE Research Institutes of Sweden*

Full paper: [https://www.researchgate.net/publication/339899602\\_Emission\\_Control\\_Measures\\_in\\_Swedish\\_Ports](https://www.researchgate.net/publication/339899602_Emission_Control_Measures_in_Swedish_Ports)

## 1.8 Scientific and technical session - Shared and servitised mobility

**(123) ComplexTrans – global land transportation system**

*Jiri Hofman, Roman Cermak - University of West Bohemia*

Full paper: <http://hdl.handle.net/11025/36516>

**(1069) Drivers and Barriers of Mobility-as-a-Service in urban areas**

*Y. Araghi – TNO (den Haag)*

## 1.11 Scientific and technical session - Novel perspectives to C-ITS and autonomous road transport

**(389) Enhanced Traffic Management Procedures of Connected and Autonomous Vehicles in Transition Areas**

*Evangelos Mintsis, Dimitrios Koutras- CERTH*

Full paper: <https://www.transaid.eu/wp-content/uploads/2017/Publications/2020-04-27-tml-finland.pdf>

**(525) Automated Valet Parking using IoT: Design, user experience and business opportunities**

*Stella Nikolaou - Center for Research & Technology Hellas (CERTH)*

Full paper: <https://cris.vtt.fi/en/publications/automated-valet-parking-using-iotdesign-user-experience-and-busi>

## 1.12 Scientific and technical session 12: Future of automated transport

### **(62) Specifications for multi-brand truck platooning**

*Dehlia Willemsen- TNO (Helmond)*

Full paper: [https://platooningensemble.eu/storage/uploads/documents/2020/03/13/TRA2020\\_01112019\\_mascalchi.pdf](https://platooningensemble.eu/storage/uploads/documents/2020/03/13/TRA2020_01112019_mascalchi.pdf)

### **(295) Scenario-based validation of highly automated vehicles - Results of the ENABLE-S3 research project**

*Andrea Leitner, Michael Paulweber - AVL List GmbH*

### **(342) A compendium of infrastructure solutions to support automated mobility on all roads** *Philippe Nitsche- AIT Austrian Institute of Technology*

### **(422) Overview of connected and automated driving test sites**

*Isabela Erdelean- Austrian Institute of Technology (AIT)*

### **(444) A Review on Societal Impacts of the Future Connected and Automated Transport Systems**

*Bin Hu- AIT Austrian Institute of Technology, Evita Papazikou , Hitesh Boghani , Ashleigh Filtness , Pete Thomas- Loughborough University*

## 1.13 Scientific and technical session- Safety analysis excellence

### **(90) An analysis of European crash data and scenario specification for heavy truck safety system development within the AEROFLEX project**

*Ron Schindler- Department of Mechanics and Maritime Sciences Chalmers University of Technology*

### **(293) Numerical analysis of motorcyclist impact into beam post of steel safety barrier (SSB) with and without HDPE protection**

*Jovan Trajkovski, Miha Ambrož, Robert Kunc - University of Ljubljana*

Full paper: [http://kmtm.fs.uni-lj.si/datoteke/TRA2020\\_29042019\\_Trajkovski.pdf](http://kmtm.fs.uni-lj.si/datoteke/TRA2020_29042019_Trajkovski.pdf)

### **(739) The experience of travel time: worthwhile or wasted? Learnings from a large-scale smartphone-based data collection campaign and expected policy impacts (H2020 MoTiV project)**

*Yannick Cornet, Giuseppe Lugano - University of Žilina*

## 1.15 Scientific and technical session- Vehicles, vehicle systems and technologies

### **(179) Affordable Multi-Material Lightweight Design - Selected Results of the H2020 Project ALLIANCE**

*Thilo Bein - Fraunhofer LBF*

Full paper : [http://publica.fraunhofer.de/eprints/urn\\_nbn\\_de\\_0011-n-5779057.pdf](http://publica.fraunhofer.de/eprints/urn_nbn_de_0011-n-5779057.pdf)

### **(210) Enabling green mobility by making highly efficient WBG semiconductors available for automotive industry**

*Christoph Abart- AVL List GmbH*

**(247) State of the art of the regulatory framework through the analysis of the technologies developed within the AEROFLEX project**

*Ignacio Lafuente, Carlos Luján, Marta Tobar, Estrella Martínez- IDIADA Automotive Technology S.A*

**(259) HiFi-ELEMENTS: An Interface Model Standard and Workflow for High Fidelity Electric Vehicle Modelling and Testing**

*Jens Ewald, Thorsten Schnorbus - FEV Europe GmbH*

Full paper: <http://publications.rwth-aachen.de/record/785203>

**(372) The H2020 project FITGEN: preliminary results and design guidelines of an integrated e-axle for the third-generation electric vehicles**

*Michele De Gennaro, Peter Scheuermann- AIT Austrian Institute of Technology GmbH*

*Elena Trancho- TECNALIA*

Full paper: [https://www.researchgate.net/publication/339883058\\_The\\_H2020\\_project\\_FITGEN\\_preliminary\\_results\\_and\\_design\\_guidelines\\_of\\_an\\_integrated\\_eaxle\\_for\\_the\\_third-generation\\_electric\\_vehicles](https://www.researchgate.net/publication/339883058_The_H2020_project_FITGEN_preliminary_results_and_design_guidelines_of_an_integrated_eaxle_for_the_third-generation_electric_vehicles)

**(381) Development of a pre-chamber for ultra-lean operation of gasoline engines**

*Knut Habermann, Bastian Morcinkowski - a FEV Europe GmbH*

Full paper: <https://hal.archives-ouvertes.fr/view/index/docid/2504571>

**(533) Particle Reduced, Efficient Gasoline Engines: A final report on the PaREGEN project**

*Simon Edwards- Ricardo GmbH*

**(680) Hair-pin winding in high-speed permanent-magnet machine**

*Mario Vukotić- University of Ljubljana*

Full paper: <https://www.researchgate.net/>

**(953) Next generation of vehicle diagnostics based on advanced onboard monitoring and cloud-based diagnostics**

*Christof Schernus- FEV Europe GmbH, Zisis Samaras- Aristotelio Panepistimio Thessalonikis*

Full paper: [http://lat.eng.auth.gr/share/publications/TRA2020\\_953\\_Geivanidis.pdf](http://lat.eng.auth.gr/share/publications/TRA2020_953_Geivanidis.pdf)



## 1.16 Scientific and technical session- Acceptance of automated transport

**(421) Drive2theFuture: Concepts and methodology towards accepting our automated future**

*Evangelia Gaitanidou, Evangelos Bekiaris - Centre for Research and Technology Hellas*

Full paper: [https://www.researchgate.net/publication/339791475\\_Drive2theFuture\\_Concepts\\_and\\_methodology\\_towards\\_accepting\\_our\\_automated\\_future](https://www.researchgate.net/publication/339791475_Drive2theFuture_Concepts_and_methodology_towards_accepting_our_automated_future)

**(803) Developing a Policy Support Tool for Connected and Automated Transport Systems**

*Bin Hu, Alexandra Milloning - AIT Austrian Institute of Technology, Ashleigh Filtness, Pete Thomas - Loughborough University*

**(950) Investigation of acceptance of driverless buses in the city of Trikala and optimization of the service using Conjoint Analysis**

*Georgia Papadima, Evangelos Genitsaris, Ioannis Karagiotas, Aristotelis Naniopoulos, Dimitrios Nalmpantis- Aristotle University of Thessaloniki*

**(1087) Risk Assessment on Public Acceptance of Autonomous Vehicles – The Drive2TheFuture project**

*Matina Loukea, Evangelia Gaitanidou, Evangelos Bekiaris- Center for Research and Technology Hellas*

## 1.17 Scientific and technical session- Modelling of traffic flow

### **(982) A Departure Delay Estimation Model for Freight Trains**

*Niloofer Minbashi, Markus Bohlin, Behzad Kordnejad- KTH Royal Institute of Technology*

Full paper: [https://www.researchgate.net/publication/339900221\\_A\\_Departure\\_Delay\\_Estimation\\_Model\\_for\\_Freight\\_Trains](https://www.researchgate.net/publication/339900221_A_Departure_Delay_Estimation_Model_for_Freight_Trains)

### **(1127) Assessing user expectations, requirements, and concerns toward automated driving progressed by internet of things – a user centric development approach**

*Katerina Toulouie- CERTH*

Full paper: [https://www.researchgate.net/publication/338149313\\_Assessing\\_user\\_expectations\\_requirements\\_and\\_concerns\\_toward\\_automated\\_driving\\_progressed\\_by\\_internet\\_of\\_things\\_-\\_a\\_user-centric\\_development\\_approach](https://www.researchgate.net/publication/338149313_Assessing_user_expectations_requirements_and_concerns_toward_automated_driving_progressed_by_internet_of_things_-_a_user-centric_development_approach)

## 1.20 Scientific and technical session - Service provision and quality

### **(588) The importance of commercial speed and operating costs for planning high-speed train services**

*Oskar Fröidh- KTH Royal Institute of Technology*

### **(875) Encouraging park-and-ride use in commuter traffic: an investigation of user needs and requirements for the Viennese commuter belt**

*Karin Markvica\*, Christian Rudloff, Gernot Lenz- AIT Austrian Institute of Technology*

### **(305) Energy Minimization for an Electric Bus Using a Genetic Algorithm**

*Sina Torabi, Mauro Bellone, Mattias Wahde- Chalmers University of Technology*

*This paper is a part of the European Transport Research Review Special Issue:*

<https://www.springeropen.com/collections/TRA2020>

## 1.23 Scientific and technical session- Rethinking public transport, commuting and mode choice

### **(187) Affective User Interfaces: a conceptual framework of emotional design at mobile routing applications**

*Eleni Chalkia, Evangelos Bekiaris- Center of Research and Technology Hellas*

## 1.24 Scientific and technical session - Thought – tried – tested – taken to use; Test sites, labs and pilots

### **(271) Transport policy labs: Accelerating mobility innovations in Sweden**

*Maria Schnurr, Håkan Burden, Linda Olsson, Kristina Andersson - RISE Research Institutes of Sweden*

### **(557) OBELICS – Optimization of e-drive concepts with scalable realtime models and functional testing based on real use-cases**

Horst Pfluegl – AVL Lis GmbH , David Delichristov - Virtual Vehicle - Das virtuelle Fahrzeug  
Forschungsgesellschaft mbH, Tomaž Katrašnik- University of Ljubljana

## 1.25 Scientific and technical session- Electrification and energy alternatives I

### **(380) AEROFLEX smart power dolly: Towards efficient and missionoriented long-haul vehicles**

Paul Mentink- TNO Business Unit Traffic & Transport.

Full paper: <http://publica.fraunhofer.de/documents/N-581118.html>

### **(409) Virtual Component and System Integration for Efficient Electrified Vehicle Development**

Reinhard Tatschl – AVL List GmbH, Zissis Samaras - University Campus Thessaloniki, Mihai Mihaescu - KTH Royal Institute of Technology, Damijan Miljavec- Univerza V Ljubljani

Full paper: [https://www.researchgate.net/publication/339942326\\_Virtual\\_Component\\_and\\_System\\_Integration\\_for\\_Efficient\\_Electrified\\_Vehicle\\_Development](https://www.researchgate.net/publication/339942326_Virtual_Component_and_System_Integration_for_Efficient_Electrified_Vehicle_Development)



### **(522) DOMUS: Design OptiMisation for efficient electric vehicles based on a USer-centric approach**

Guillem Badia, Ines Muñoz- IDIADA Automotive Technology SA, Peter Moertl- Virtual Vehicle Research Center

### **(571) Grid Impact Assessment of High Power E-Bus Charging Methods with Seasonal Load Variations**

Daniel Stahleder, David Reihs, Stephan Ledinger, Felix Lehfuss - Austrian Institute of Technology

Full paper: [https://www.researchgate.net/publication/339874802\\_Grid\\_Impact\\_Assessment\\_of\\_High\\_Power\\_E-Bus\\_Charging\\_Methods\\_with\\_Seasonal\\_Load\\_Variations](https://www.researchgate.net/publication/339874802_Grid_Impact_Assessment_of_High_Power_E-Bus_Charging_Methods_with_Seasonal_Load_Variations)

### **(951) Maturity of power transfer technologies for electric road systems**

Martin G. H. Gustavsona- RISE Research Institutes of Sweden

Full paper: <http://urn.kb.se/resolve?urn=urn:nbn:se:ri:diva-44423>

### **(1009) Feasibility study of reconfigurability between different power transmission concepts for electric bus charging**

Ashkan Pirooza, Foad Heidari Gandomana, Yousef Firouza Joeri Van Mierlo- Vrije Universiteit Brussel

## 1.26 Scientific and technical session- Electrification and energy alternatives II

### **(303) REDIFUEL: Robust and Efficient processes and technologies for Drop-In renewable FUELS for road transport**

Benedikt Heuser, Barbara Graziano, Sascha Schönfeld, Thorsten Schnorbus - FEV Europe GmbH

Maarten Messagie, Giuseppe Cardellini- Vrije Universiteit Brussel

Full paper: <https://hal.archives-ouvertes.fr/hal-02506871/document>

### **(583) Improvement potentials for user-centrally designed electric vehicles: The QUIET Project**

Hansjörg Kapeller, Dominik Dvorak, Dragan Simic- AIT Austrian Institute of Technology GmbH

Full paper: [https://www.researchgate.net/publication/339875514\\_Improvement\\_potentials\\_for\\_user-centrally\\_designed\\_electric\\_vehicles\\_The QUIET\\_Project](https://www.researchgate.net/publication/339875514_Improvement_potentials_for_user-centrally_designed_electric_vehicles_The QUIET_Project)

### **(732) Horizon2020 ReFreeDrive Project: Rare Earth Free e-Drives featuring low cost manufacturing**

Misa Milosavljevic- IFP Energies Nouvelles

Full paper: [http://www.refreedrive.eu/wpcontent/downloads/TRA2020\\_25102019\\_Rodriguez.pdf](http://www.refreedrive.eu/wpcontent/downloads/TRA2020_25102019_Rodriguez.pdf)

### **(919) Thermal Management Strategy of Electric Buses towards ECO Comfort**

*Mohammed Mahedi Hasan, Mohamed El Baghdadi, Omar Hegazy - Vrije Universiteit Brussel (VUB) ETEC Department and MOBI Research Group. Jeroen Maas, Roel de Groot - TNO Automotive*  
**(1105) Embracing Electromobility in Europe: Analysis of good practices and their Transferability in nine European Regions**

*Jordi Broos, Lieslot Vanhaverbeke- Vrije Universiteit Brussel*

## **1.27 Scientific and technical session- Catering non-motorised transport**

**(1008) The creation of a citizen observatory campaign aimed at promoting cycling through FLAMENCO: an open and reconfigurable digital platform**

*Liesbeth De Wilde, Jesse Pappers, Imre Keserü, Cathy Macharis- Mobility, Logistics and Automotive Technologies Research Centre (MOBI), Vrije Universiteit Brussel,*

Full paper: <https://doi.org/10.5281/zenodo.3711942>

**(1055) Nudging bicyclists towards a safer behavior -Experiences from the MeBeSafe project**

*Pontus Wallgren, MariAnne Karlsson, Viktor Bergh Alvergren- Chalmers University of Technology*

Full paper: [https://research.chalmers.se/publication/515725/file/515725\\_Fulltext.pdf](https://research.chalmers.se/publication/515725/file/515725_Fulltext.pdf)

## **1.31 Scientific and technical session - Insights into system resilience**

**(145) FORESEE: Future proofing strategies FOr resilient transport networks against Extreme Events**

*Iñaki Beltran-Hernando, J. M. Isoird - Fundación Tecnalia Research & Innovation*

Full paper: <https://doi.org/10.5281/zenodo.3707808>

## **1.32 Scientific and technical session - Infrastructures for the era of automation**

**(598) Data needs, requirements and providers to create a concept for a data-sharing platform to support Road Operators' efforts to realize digitalization and to support cooperative automated driving**

*Kerry Malone, Max Schreuder, Frank Berkers- TNO, Sustainable Urban Mobility & Safety*

Full paper: [https://32b45a2b-9547-4eca-9049-](https://32b45a2b-9547-4eca-9049-bd2192a42b0d.filesusr.com/ugd/1cba1b_0b407d7f682b41458191f5823a42e81f.pdf)

[bd2192a42b0d.filesusr.com/ugd/1cba1b\\_0b407d7f682b41458191f5823a42e81f.pdf](https://32b45a2b-9547-4eca-9049-bd2192a42b0d.filesusr.com/ugd/1cba1b_0b407d7f682b41458191f5823a42e81f.pdf)

**(1039) Internet of Logistics: A New Opportunity for the Digitalization of Logistics**

*Martin Aronsson - RISE Research Institutes of Sweden, Behzad Kordnejad - KTH Royal Institute of Technology*

Full paper: [https://www.researchgate.net/publication/339875835 Internet of Logistics A New Opportunity for the Digitalization of Logistics](https://www.researchgate.net/publication/339875835_Internet_of_Logistics_A_New_Opportunity_for_the_Digitalization_of_Logistics)

## **1.35 Scientific and technical session 35: Innovations in logistics and freight**

**(132) Mobility hubs as a prerequisite for intermodality and sustainable transport solutions**

*Cilli Sobiech, Maria Schnurr, Thomas Nyström- RISE AB*



## 1.39 Scientific and technical session - Exploring shipping and maritime operations

**(260) The HyMethShip Concept: An investigation of system design choices and vessel operation characteristics influence on life cycle performance**

*Elin Malmgren, Selma Brynolf- Maritime Environmental Sciences, Chalmers University of Technology*

Full paper: [https://graz.pure.elsevier.com/files/27259874/Malmgren\\_et\\_al\\_TRA2020.pdf](https://graz.pure.elsevier.com/files/27259874/Malmgren_et_al_TRA2020.pdf)

**(717) Models to evaluate container transshipment ports in the Mediterranean Sea**

*Elen Twrdy, Milan Batista- University of Ljubljana, Faculty of maritime studies and transport*

## 1.42 Scientific and technical session- Maintenance and asset management

**(134) Low-cost system for monitoring road friction properties**

*Miha Ambrož, Simon Grum, Rok Kogovšek, Patrik Tarfila, Rok Štefančič, Roman Kamnik, Uroš Hudomalj, Alexander Marinšek- University of Ljubljana, Faculty of Mechanical Engineering*

Full paper: [http://kmtm.fs.uni-lj.si/conskid/CONSKID\\_TRA2020.pdf](http://kmtm.fs.uni-lj.si/conskid/CONSKID_TRA2020.pdf)

## 1.44 Scientific and technical session - Corridors – connecting markets in a sustainable way

**(227) Mobility related trends and their implications on providing future-proof road networks**

*Karin Markvica, Gernot Lenz, Martin Reinthaler, Johannes Asamer, Stefan Seer- AIT Austrian Institute of Technology*

## 1.45 Scientific and technical session 45: Innovation for a multimodal society

**(633) Getting ready for the future: How can we reach user-centric mobility in Europe by 2030?**

*Imre Keserua- Vrije Universiteit Brussel, Department BUTO, MOBI Research Centre*

Full paper: <https://doi.org/10.5281/zenodo.3707706>

**(1139) Solving urban problems through co-creation: The LOOPER project**

*Jesse Pappers, Imre Keserü- Vrije Universiteit Brussel*

Full paper: [https://www.researchgate.net/publication/339848880\\_Solving\\_urban\\_problems\\_through\\_co-creation\\_The\\_LOOPER\\_project](https://www.researchgate.net/publication/339848880_Solving_urban_problems_through_co-creation_The_LOOPER_project)

## 1.48 Scientific and technical session 48: Perspectives on policy, regulation and pricing

**(169) Setting up a system for effective monitoring of the performance of concession contracts in the public passenger transport**

*Samo Zupan, Miha Ambrož- University of Ljubljana, Faculty of Mechanical Engineering*

Full paper: [http://kmtm.fs.uni-lj.si/datoteke/PPTMonitoring\\_TRA2020.pdf](http://kmtm.fs.uni-lj.si/datoteke/PPTMonitoring_TRA2020.pdf)

**(337) Platooning regulatory state of the art based on the H2020 Project: ENSEMBLE**



*Ignacio Lafuente, Carlos Luján, Marta Tobar, Estrella Martínez - IDIADA Automotive Technology*

**(827) Gaps in current regulations for ship emissions**

*Leonidas Ntziachristos, Sokratis Mamarikas- Aristotle University of Thessaloniki*

**(920) Sub-23nm exhaust particle number emissions from latest Euro 6 passenger road vehicles**

*J. Andersson - Ricardo UK, A. Mamakos, A. Klug – AVL List*



**(xxx)** = these abstracts involve person(s) from the EARPA member companies which are highly active within the EARPA community.