

Draft of detail program

GMT	TRACK 1	TRACK 2	TRACK 3
	MONDAY(JULY 12) Day 1		
09:00-09:20	Opening session		
	Moderator: Prof. Sandra Erkens, Delft University of Technology		
	Session number: 1	Session number: 2	Session number: 3
	Green and sustainable pavement materials – Part 1	Recycling technology – Part 1	Functional pavement design – Part 1
	Moderator: Shifeng Wang Shanghai Jiao Tong University shfwang@sjtu.edu.cn	Moderator: Mingliang Li Research Institute of Highway Ministry of Transport li@rioh.cn	Moderator: Zhen Leng Hong Kong Polytechnic University zhen.leng@polyu.edu.hk
09:25-11:45	- Mix design of base course of high ratio content iron tailings sand recycled mixture (Y. Dong, H. Zhang, Y. Dong, Y. Hou & J. Tian) - Evaluation of asphalt binder anti-aging performance based on rheological and chemical properties (M. Guo, M. Liang, Y. Fu & H. Liu) - Utilisation of recycle concrete aggregate in bituminous paving mixes: an economic evaluation (J. P. Giri, M. Panda & U. C. Sahoo) - Simple evaluation of NOx degradation by nano-TiO2 coatings on road pavements under natural light (M. Fang, Y. Cheng & L. Zhan) - Application of green calcium sulphoaluminate cement to prepare foamed concrete for road embankmen (H. Yuan, Z. Ge, R. Sun, Y. Guan, Y. Huo & H. Zhang) - Properties and applicability of pervious concrete for paving flags (I. N. Grubeša, I. Barišić, B. Bačun & S. Juradin) - Research on shrinkage control technology of lightweight ultra-high performance concrete (J. Fu, Z. Wang, Y. Min & Q. Ding)	- Effect of Portland Pozzolanic Cement filler on waste mixed plastic modified bituminous mix (S. Karmakar, T. K. Roy & U. Naveen) - Influence of reaction time on interaction mechanism of rejuvenator composed by crumb rubber and waste cooking oil (X. Yi, R. Dong, M. Zhao, C. Shi & J. Yang) - The use of gyratory compaction to assess the workability of asphalt mixtures (A. Margaritis, T. Tanghe, J. D. Visscher, S. Vansteenkiste & A. Vanelstraete) - The rheological properties of terminal blend hybrid asphalt before and after aging (S. Wang & W. Huang) - Vehicle load simulator induced cracking in semi-dense asphalt with RCA filler (P. Mikhailenko, M. Arraigada, Z. Piao & L.D. Poulikakos) - Method for reducing RAP agglomeration and variability, increasing RAP content: fine separation (H. Zhan, N. Li, W. Tang, Z. Wang, X. Yu & H. Ma) - Study on the influence of red mud on the durability of asphalt mixture and its modification (J. Zhang, C. Guo, J. Wang, K. Wang, C. Ma, M. Liang & Z. Yao)	- Fatigue models for airfield concrete pavement: review and discussion (J. Yuan, W. Li, X. Jia, Z. Zhou & L. Ma) - Exploration on overlay tester test analysis for anti-cracking ultra-thin layer mixes (J. Tian, Y. Dong, Y. Hou, X. Tong & J. He) - Asphalt pavement unified mechanical potential damage model for top-down cracks and rutting distress (J. Song, J. Shi, H. Wang & X. Li) - Research on freeze-thaw fatigue of asphalt mixture based on ADE theory (W. Zhan, S. Gao, Y. Yu, D. Xiao & J. Wang) - Reliability analysis of asphalt mixture and pavement based on MC method (Y. Sun, Z. Zheng, L. Li & J. Wang) - Case study: crack propagation in situ vs. service life prediction (A. Blas, A. Zeißler & F. Wellner) - Study on the influence of coarse aggregate blends of different sizes and proportions on the homogeneity of asphalt mixtures (W. Yu, C. Xing, D. Wang & G. Lu)
11:50-13:00	Keynote Address: Prof. Hussain Bahia, University of Wisconsin-Madison		
	Keynote Address: Prof. Lijun Sun, Tongji University		
	Moderator: Prof. Sandra Erkens, Delft University of Technology		
	Session number: 4	Session number: 5	Session number: 6
	Green and sustainable pavement materials – Part 2	Recycling technology – Part 2	Functional pavement design – Part 2
	Moderator: Feipeng Xiao Tongji University fxiao@tongji.edu.cn	Moderator: Gordon Airey The University of Nottingham gordon.airrey@nottingham.ac.uk	Moderator: Miodir Miljković University of Niš miodir.miljkovic@outlook.com
13:05-15:25	- Asphalt modified by finely dispersed sidewall tire rubber with excellent low temperature performance (X. Yu, Y. Xie & S. Wang) - Wide spectral response titanium dioxide for degrading vehicle exhaust in asphalt pavement (Z. Hu, T. Xu, P. Liu & M. Oeser) - Effect of three-component polyurethane adhesive on the interlaminar bonding performance of poro-elastic road surface (J. Li, M. Li, J. Li, W. Ren & H. Wu) - Characterization of asphalt binder using tackiness properties (S. N. Suresha & V. H. Kumar) - Investigation on the temperature field distribution of porous asphalt mixture with steel slag aggregates heated by microwave (Y. Wang, X. Chen, Z. Liu & Q. Dong) - Rheological behavior of asphalt binder based on time-temperature superposition principle: a molecular dynamics simulation study (X. Zhu, W. Zhang, P. Wu, L. Zhou, C. Yan & Z. Du) - Effects of SARA fractions on low-temperature properties of crumb rubber modified binders (T. Wang & F. Xiao)	- Evaluation of low temperature performance of oil modified asphalt using the glass transition temperature (J. Xu, C. Xing, Z. Fan, B. Hong, D. Wang & G. Lu) - Resource recycling of the industrial solid waste in induction asphalt mixture (C. Fu, K. Liu, Q. Liu & P. Liu) - The effect of emulsified rejuvenator on the workability of plant RAP mixtures (W. Tang, N. Li, H. Zhan, X. Yu, G. Ding & X. Zou) - Utilization of RAP for the construction of CTB containing thin bituminous pavement layer and chemical stabilizer (R. S. Chhabra, G. D. Ransinchung R. N., S. Vallabhaneni, K. M. Remella & A. Singh) - Equivalence testing of iCCL and BBR low-temperature continuous grade (H. Azari & A. Mohseni) - Rheological and chemical properties of bitumen during hot in-place recycling (J. Wang, F. Xiao & X. Qian) - The influence of long-term aging on the chemical properties of bitumen (S. Ren, X. Liu, P. Lin & S. Erkens)	- Rutting depth prediction model of airfield composite pavement (L. Man, J. Ling, L. Ren, Z. Wang & J. Gao.) - The benefit of joint heaters for asphalt surface construction (G. White) - Study on the seasonal variation and deterioration behavior of the skid resistance performance of asphalt pavement (Y. He, D. Wang, C. Xing, C. Wang, Q. Tan & B. Hong) - Field evaluations of nuclear and non-nuclear gauges as alternates to destructive coring for airport asphalt density testing (G. White & F. Alrashidi) - Effect of climate region on field oxidative ageing of asphalt pavements using multiphysics modelling approaches (E. Omaiirey & Y. Zhang) - Passing rate difference analysis on dense and stone matrix gradations of asphalt mixtures (Z. Zhao, J. Li, X. Xiao, Z. Li & F. Xiao) - Pavement coding method providing high-precision positioning for vehicles (L. Zhao, H. Zhao, D. Gao & J. Cai)
	TUESDAY(JULY 13) Day 2		
	Session number: 7	Session number: 8	Session number: 9
	Warm & cold mix asphalt materials – Part 1	Pavement preservation, maintenance and rehabilitation – Part 1	Smart pavement materials and structures – Part 1
	Moderator: Yuhong Wang Hong Kong Polytechnic University yuhong.wang@polyu.edu.hk	Moderator: Dawei Wang Harbin Institute of Technology dawei.wang@hit.edu.cn	Moderator: Xue Luo Zhejiang University xueluo@zju.edu.cn
09:25-11:45	- Two comprehensive cracking resistance indexes of asphalt mixtures using non-notched semi-circular bending tests (D. Xu, F. Ni, Z. Zhao & D. Zheng) - Investigation on influencing factors of moisture susceptibility of warm mix asphalt based on surface free energy (L. Liu, L. Liu, Y. Yu & L. Sun) - Viscoelastic finite element modeling of flexible pavement patching (Y. Lu & R. M. Hajji)	- Field assessment of rigid pavement stabilization using cementitious grout: case study (H. Zhao, C. Li, L. Ma & Z. Tao) - Study on nonlinear behavior of soil-cement based on CTS model (W. Zhan, X. Yan, Z. Hu, Y. Yu & J. Wang) - A method for prediction and maintenance planning of multi-lane pavement (X. Tong, Y. Hou, Y. Dong, Y. Zhang & J. Tian)	- Numerical modelling of fatigue cracking in asphalt mixture using cohesive elements (A. Chen, G. D. Airey, N. Thom, L. Wan & Y. Li) - Experimental analysis of piezoelectric transducers applications for energy harvesting pavement (H. Zhao, C. Li & L. Ma) - Investigation on bulk material compaction and mixing via real-time sensing technology (C. Wang, P. Liu, C. Schulze, M. Oeser & J. Friederichs)

	- Computer molecular dynamics simulation study on the asphalt molecular model construction based on time-of-flight mass spectrometry (<i>K. Hu, C. Yu, D. Wang, Y. Chen & S. Han</i>) - Study on blending degree of virgin and aged asphalt in hot recycled mixture based on aggregates surface properties (<i>S. Chen, X. Cai, L. Chen, K. Wu, J. Xie, H. Xiao & H. M. Z. Hassan</i>) - Laboratory performance assessment of low temperature asphalt mixtures with high recycled materials contents (<i>P. Georgiou & A. Loizos</i>) - Calculation derivation and test verification of indirect tensile strength of asphalt pavement interlayers at low temperatures (<i>Q. Zhang, Z. Fang, Y. Xu & Z. Ma</i>)	- Study on decay behavior of asphalt pavement slip resistance performance (<i>X. Lin</i>) - Pavement roughness level classification based on logistic and decision tree machine learnings (<i>H. Han, T. Zhang, Q. Dong, X. Chen & Y. Wang</i>) - Towards more realistic accelerated laboratory aging of asphalt samples (<i>G. White & A. Abouelsaad</i>) - Effects of curing time on performances of high-viscosity modified asphalt (<i>M. Li, H. Lu, J. Xu, J. Li & H. Wu</i>)	- A novel weigh-in-motion system for traffic loads using F-P cavity fiber optical technology (<i>Z. Bian, H. Zhao, K. Peng & Z. Wang</i>) - Application of one-third scale accelerated pavement testing (APT) to study the high temperature performance of China Qingchuan rock asphalt modified asphalt (<i>Y. Ye, C. Zhuang & Y. Wang</i>) - Research on ice interfacial and mechanical behavior of ski jumping inruns (<i>Y. Sun, C. Wu & C. Sun</i>) - Implementation of engineering procurement construction contracting in civil aviation infrastructure pilot projects practice in China (<i>C. Zhou</i>)
11:50-13:00	Keynote Address: Prof. Baoshan Huang, University of Tennessee Keynote Address: Prof. Louay Mohammad, Louisiana State University Moderator: Prof. Tom Scarpas, Khalifa University		
13:05-15:25	Session number: 10	Session number: 11	Session number: 12
	Warm & cold mix asphalt materials – Part 2	Pavement preservation, maintenance and rehabilitation – Part 2	Smart pavement materials and structures – Part 2
	Moderator: Evangelos Manthos Aristotle University of Thessaloniki emanthos@civil.auth.gr	Moderator: Zhanping You Michigan Technological University zyou@mtu.edu	Moderator: Yuqing Zhang Aston University y.zhang10@aston.ac.uk
	- Use of recycled concrete aggregate in cold bituminous emulsion mix (<i>S. Jain & B. Singh</i>) - Low-temperature performance test method and improvement measures of emulsified asphalt cold recycling mixture (<i>Z. Han, Y. Meng, T. Jin, L. Liu & L. Sun</i>) - Moisture susceptibility evaluation of RAP based foamed bituminous mix (<i>L. Gupta, R. Kumar, A. Kumar</i>) - Effect of foaming water on the rheological properties of foamed asphalt binder and compactability of stabilized RAP in cold recycling (<i>W. Ma, D. Wang & R. West</i>) - Micro recovery, aging, and performance grading of emulsified asphalt using UPTIM (<i>A. Mohseni & H. Azari</i>) - Research on diffusion process of new and old asphalt based on SEM (<i>X. Tian, X. Lu, H. Hu, C. Guo & G. Li</i>) - Low-temperature fracture behaviour of synthetic polymer-fibre reinforced warm mix asphalt (<i>C. G. Daniel, X. Liu, P. Apostolidis, S.M.J.G. Erkens & A. Scarpas</i>)	- Verification of the rigid layer depth setting model based on the consistency of backcalculated subgrade modulus (<i>Y. Hu, L. Sun & G. Zang</i>) - Research on the trackside concrete reinforcement scheme of small radius curve at junction section of modern tram (<i>Z. Wang & Z. Lei</i>) - Predicting the pavement performance: a comparison on traditional and multivariate time series model (<i>W. Jiang & Q. Dong</i>) - Research on information management of Airport pavement quality based on BIM and GIS integration (<i>Z. Liu, X. Gua & L. Wang</i>) - Study on comprehensive evaluation of pavement condition based on comprehensive integration weighting method and cloud model (<i>M. Xiao & L. Fan</i>) - Study on the instantaneous healing characteristic of asphalt under cyclic loading (<i>L. Zhou, W. Huang, Q. Lv & L. Sun</i>) - Preliminary field and laboratory investigation on the use of non-contact digital ski sensor as pavement-smoothing technology in the South Korea expressway network (<i>A. C. Falchetto & K. H. Moon</i>)	- A surface induced, Internet of Things (IoT) powered porous pavement system (<i>Y. Wang</i>) - Utilization of PEG/SiO₂ phase change composite to regulate open-graded friction course temperature (<i>J. Chen & X. Shi</i>) - Lightweight design for smart precast concrete pavement based on topology optimization method (<i>H. Chen, H. Zhao & X. Fu</i>) - Characterization of aggregate packing using digital image analysis (<i>V.T. Thushara, U. Chakkoth & J. M. Krishnan</i>) - Strain sensing behavior of epoxy composites with nano/micro hybrid CNT/GNP and CNT/CB for asphalt road in situ strain monitoring (<i>M. Liang, Z. Qiu, L. Su & Y. Rong</i>) - Recycling of waste glass fiber reinforced polymer (GFRP) power as alternative filler for asphalt mastics (<i>J. Lin, B. Hong, T. Li, D. Wang, Z. Fan & S. Leischner</i>) - Estimate of VOCs release amount from asphalt pavement within its full life cycle (<i>X. Chang & Y. Xiao</i>)
WEDNESDAY (JULY 14) Day 3			
09:25-11:45	Session number: 13	Session number: 14	Session number: 15
	Eco-efficiency pavement materials – Part 1	Mechanical characterization	Pavement monitoring and big data analysis – Part 1
	Moderator: Tao Ma Southeast University matao@seu.edu.cn	Moderator: Yue Xiao Wuhan University of Technology xiaoy@whut.edu.cn	Moderator: Xingyi Zhu Tongji University zhuxingyi66@tongji.edu.cn
	- Study on performance of reclaimed rubber modified asphalt by lubricant by-products (<i>P. Kong, G. Xu, J. Yang & X. Chen</i>) - An overview of the heat exchanging asphalt layer prototype: a case study (<i>T. Ghalandari, L. Verheyden, N. Hasheminejad, R. Baetens, W. Van den bergh & C. Vuye</i>) - Experimental study on basic properties of basalt fiber reinforced concrete (<i>L. Yu, X. Li & L. Bao</i>) - Research on strength and microstructure of fibre foamed concrete (<i>T. Qiu, C. Xing, Y. Tan, J. Xu, X. Liu, L. Wang, Y. Wang, C. Chen & L. Zhao</i>) - Influence of red mud filler on the fatigue behaviour of bituminous mastic (<i>M. Chaudhary, N. Saboo, A. Gupta & M. Miljković</i>) - Effect of carbon nanofibers on mechanical and microstructural properties of geopolymer based on lunar regolith simulant (<i>R. Zhang, S. Zhou, Z. Yang & F. Li</i>) - A temperature-independent methodology for bitumen modification evaluation based on DSR measurement (<i>Q. Liu, H. Wang, J. Wu, M. Oeser</i>)	- Energy-based characterization of the fatigue crack density evolution of asphalt binders through controlled-stress fatigue testing (<i>C. Shi, X. Cai, T. Wang, X. Yi & J. Yang</i>) - Damage mechanism in asphalt binder time sweep test from the perspective of failure appearance (<i>Z. Zhang, Q. Liu, P. Liu & M. Oeser</i>) - Wetting deformation characteristics of granite residual soils and the micro-mechanism (<i>Z. Wang, J. Ling, Z. Bian & L. Man</i>) - Evaluation of rutting performance of high modulus asphalt mixture based on the modulus index (<i>H. Zhang, M. Zhang, Y. Guan, G. Huang, Y. He, J. Zhang</i>) - Modeling and characterizing the mesomechanical behavior of asphalt mixture with random aggregate distribution: a coupled topological-numerical method (<i>C. Du, P. Liu & M. Oeser</i>) - Research on morphological characteristics of coarse aggregates based on image processing (<i>R. Jiang, X. Zhou, M. Ran, Z. Zhao, Y. Yan & J. Guan</i>) - Non-linear modeling of the influence of rest period on healing behavior of asphalt concrete mixtures (<i>N. Roy, V. Chowdary, U. Saravanan & J. M. Krishnan</i>)	- A thermal digital twin for condition monitoring of asphalt roads (<i>L. Barisic, E. Levenberg, A. Skar, A. Boyd & P. Zoulis</i>) - Big data in roads and pavements: insights from a bibliometric study and a critical review of recent publications (<i>S. Bhat & S. N. Suresha</i>) 3D texture reconstruction of asphalt pavement based on MATLAB (<i>Q. Chen, F. Peng & M. Zhang</i>) 3D textural fractal characterization and its correlation with the skid resistance of asphalt pavement (<i>W. Xiong, A. Liu & M. Zhang</i>) - Damage fracture characterization of asphalt mixtures under freeze-thaw cycles based on acoustic emission monitoring (<i>L. Fu, W. An & X. Chen</i>) - Microscale morphology observation of bitumen: A comparison of atomic force and confocal laser scanning microscopy (<i>J. Blom & H. Soenen</i>) - Research on prediction model of asphalt pavement subsidence development based on Back Propagation Neural Network (<i>M. Xiao & S. Qian</i>)
11:50-13:00	Keynote Address: Dr. Lily Poulikakos, Empa Keynote Address: Prof. Hongduo Zhao, Tongji University Moderator: Dr. Xueyan Liu, Delft University of Technology		

	Session number: 16	Session number: 17	Session number: 18
	Eco-efficiency pavement materials – Part 2	Safety technology for smart roads	Pavement monitoring and big data analysis – Part 2
	Moderator: Pengfei Liu RWTH Aachen University liu@isac.rwth-aachen.de	Moderator: Katerina Varveri Technical University of Delft a.varveri@tudelft.nl	Moderator: Eyal Levenberg Technical University of Denmark eylev@byg.dtu.dk
13:05-15:25	• A preliminary approach for comparative life cycle assessment of flexible and rigid pavements - a case study (<i>B. S. S. Varun, J. Choudhary & A. Gupta</i>) • Reduction of accumulated plastic deformations in bases courses (<i>L. Vollmert</i>) • The fatigue life extension prospect of calcium alginate capsules in porous asphalt (<i>S. Xu, X. Liu, A. Tabaković & E. Schlangen</i>) • Influence of the characteristics of the aggregate on the fatigue performance of the epoxy asphalt mixture (<i>G. Zeng, H. Huang & M. Zhou</i>) • Investigation of fog seal with waterborne thermosetting materials in airport pavement (<i>L. Xu & F. Xiao</i>) • Microstructural and rheological analysis of crumb rubber modified bitumen (<i>J. B. Borinelli, J. Blom, G. Jacobs, D. Hernando, W. van den bergh & C. Vuye</i>) • Towards lower environmental-impact of asphalt materials with lower VOCs release (<i>Y. Xiao</i>)	• Monitoring-based maintenance decision-making models for subgrade settlement (<i>Z. Duan, C. Gui & Y. Hou</i>) • Analysis of compensatory driving behavior under fog weather conditions (<i>Y. Zhang, Z. Guo, B. Zhu, Z. Fan & H. Zhang</i>) • Three-dimensional flow simulation of Open Graded Friction Course's permeability (<i>S. Zhang, O. Elkhateeb & H. Feng</i>) • Development of a tire-pavement friction model incorporating the water effect (<i>J. Cai, H. Zhao, X. Qian, Z. Du & L. Zhao</i>) • Research on load effect based on bridge pavement repairing of the old bridge (<i>M. Xiao, S. Qian & C. Wang</i>) • Evaluating the driving safety of highway based on the differential water film analysis (<i>X. Gong, Y. Geng, Y. Ma & X. Chen</i>) • Measurement, modeling and validation of skid resistance of asphalt concrete pavement: Laboratory to field literature review (<i>A. Kumar, A. Gupta & K. Anupam</i>)	• A multi-objective optimization model on taxiing mode selection and aircraft stands allocation for closely spaced parallel runway (<i>J. Ling, Y. Fang, X. Li & G. Wang</i>) • Taxiing aircraft monitoring through pavement vibration sensing (<i>Z. Bian, K. Peng, H. Zhao & M. Zeng</i>) • Effectiveness rejuvenation in Porous asphalt (<i>M. Moenielal, D. van Vliet, W.L.C. van Aalst, J.W.F. van der Kemp, P. The & A. Varveri</i>) • Classification of roughness for asphalt pavement resurfacing treatments based on SVM-KNN machine learning algorithm using LTPP data (<i>L. Wang, T. Zhang, Q. Dong & W. Jiang</i>) • Morphology characterization of aggregate with 3D curvature analysis (<i>F. Wang & Y. Xiao</i>) • Evolution rule of dynamic response of asphalt pavement under lateral movement test by MLS66 (<i>C. Wu, Y. Huang, B. Zheng, R. Cao, X. Gu & H. Ren</i>) • Investigating vibration characteristics at concrete pavement joints using distributed optical fiber sensors (<i>Z. Bian, M. Zeng, H. Zhao, H. Chen & K. Cheng</i>)
15:30-15:50	Closing session Moderator: Dr. Xueyan Liu, Delft University of Technology; Xingyi Zhu, Tongji University		
THURSDAY(JULY 15). Day 4			
09:25-12:25	Workshop 1: Vehicle-road interaction and driving safety: towards a Connected, Coordinated and Automated Road Transport Organizer: Prof. L. Sun & Prof. J. Ling Affiliation: Tongji University, China	Workshop 2: Shaping a sustainable future for asphalt pavements Organizer: Prof. A. Cannone Falchetto & Dr. D. Wang Affiliation: Aalto University, Finland & Technical University of Braunschweig, Germany	Workshop 3: Fast Moving Loading Big Data and Standards of Mobile Load Simulator(MLS) Organizer: Yuchen Wang
12:30-15:30	Workshop 4: Changes in binder properties and the role of additives Organizer: Dr. S.N. Nahar & Dr. X.Liu Affiliations: TNO & Delft University of Technology, the Netherlands	Workshop 5: Smart pavement – vehicle monitoring, tools and technics for functional pavement. Organizer: Prof. T. F. Fwa & Dr. A. Kumar Affiliation: Chang'an University, China & Delft University of Technology, the Netherlands	