LOCAL ORGANIZING COMMITTEE

Symposium Chairman
Prof. Hassan Baaj
Hassan Baaj is an Associate Professor at the University of Waterloo, Norman W. McLeod Professor in Pavement Materials, and Director of the Centre for Pavement and Transportation Technology. He has over 20 years of experience in pavement materials and design and has served in several scientific and technical organizations. His research interests include sustainable pavement materials, self-healing materials, constitutive modelling of the behavior of construction materials, life-cycle analysis, and mechanistic pavement design.

Dr. Pezhouhan Tavassoti-Kheiry
Pezhouhan is currently a Research Associate at the Centre for Pavement and Transportation Technology. He was previously an Assistant Professor of Research at the Thomas D. Larson Pennsylvania Transportation Institute at the Pennsylvania State University, where he received his PhD in 2016. He was also a Core Faculty Member and Co-Founder of the Pavement Research Team at the National Transportation Infrastructures Research Center in Iran. Pezhouhan has a broad range of research interests in civil engineering, including pavement materials and non-destructive testing.

Michelle Liu
Michelle is a MASc Candidate under the supervision of Prof. Susan Tighe at the Centre for Pavement and Transportation Technology. Michelle received an Honours BASc in Civil Engineering from the University of Waterloo in 2018 and is a registered Engineer-in-Training (EIT) in Ontario. She also holds a LEED Green Associate designation with the U.S. Green Building Council. She is primarily interested in cold regions pavement engineering and is currently conducting field research in Yellowknife, Northwest Territories. Michelle is also the President of the graduate student association in her department.

Matea Ceric
Matea Ceric is a BASc Candidate in Civil Engineering at the University of Waterloo and is currently working as an undergraduate research associate with Prof. Hassan Baaj. She works with various graduate students in pavement engineering research both in and outside the laboratory. Matea is particularly passionate about the development of green solutions to large-scale problems, and hopes to help tackle the climate crisis through the design of sustainable buildings, roads, and cities. She plans to pursue a MASc in civil engineering in the near future.
PRESENTERS

In order of presentations
High Performance – What Does that Mean?

Prof. Manfred N. Partl
VSS (Swiss Association of Road and Traffic Experts)
KTH Royal Institute of Technology (Stockholm)

Prof. Manfred N. Partl, born 19.11.1953, in Vienna (AT), is civil engineer with doctoral degree 1983 from ETHZ Swiss Federal Inst. of Technology in Zurich. From 1990 until his recent retirement he was Director of the Road Engineering/Sealing Components Laboratory at EMPA Swiss Federal Laboratories for Materials Science and Technology (Switzerland). He was teaching at ETHZ Swiss Federal Institute of Technology in Zurich for many years and is still continuing his long-term affiliation with KTH Royal Institute of Technology in Stockholm and with Carleton University, Ottawa.

During his professional career in private industry and academia, he has worked on wood, polymers, fiber cement and bituminous materials. His special interest focuses on mechanical and physical properties of bituminous materials and systems with respect to innovative sustainable development and multi-functionality of road pavements.

He is former president of ISAP (Internat. Society for Asphalt Pavements) and chair of ISAP TC APE on Asphalt Pavements and Environment. He has served Rilem (International Union of Materials and Experts in Construction Materials, Systems and Structures) for many years as TC chair and member of Rilem advisory boards. He has been awarded Rilem Fellow and later Rilem Honorary member. He got an AAPT award of recognition from (Association of Asphalt Technologists) and is honorary member of SIIV (Società Italiana Infrastrutture Viarie).

On the national level, he is member of the board of VSS (Swiss Association of Road and Traffic Experts) and chair of its international Science Council.

He is associate editor of the Journal Materials and Structures and the Int. J. of Road Materials & Pavement Design RMPD as well as member of the editorial board of IJPRT International Journal of Pavement Research and Technology.
Consequential Life Cycle Assessment based Pavement Maintenance and Rehabilitation Framework

Prof. Eshan Dave
University of New Hampshire (United States of America)

Eshan Dave obtained his M.S. and Ph.D. degrees from University of Illinois at Urbana-Champaign in Civil Engineering in 2003 and 2009 respectively. At present, he is Associate Professor in the Department of Civil and Environmental Engineering at the University of New Hampshire. Eshan’s research interests include performance evaluation of pavements and paving materials, development and implementation of performance based specifications, resilient design of transportation infrastructure, climate variability impacts on infrastructure longevity, life cycle assessment, and cold regions pavement operability and performance.

He is actively involved in Transportation Research Board, he is Committee Research Coordinator for AHD20 [Pavement Maintenance] and Chair of the Subcommittee on Advanced Models to Understand Behavior and Performance of Asphalt Mixtures [AFK50(1)]. Eshan is also member of RILEM Technical Advisory Committee [TAC] and Deputy Chair for the TC264 Asphalt Pavement Recycling. He is member of the board of directors for International Society of Asphalt Pavements [ISAP] and chair of the Technical Committee on Pavement Field Evaluation [2014-present]. He has recently led and participated in research studies on performance based material selection, design and management of pavement infrastructure.
Cold Recycled Mixtures and the Effects of the Active Fillers

Prof. Gabriele Tebaldi
University of Parma (Italy)

Dr. Gabriele Tebaldi is Associate Professor in the Department Engineering and Architecture at the University of Parma and Joint Professor at Engineering School for Sustainable Infrastructures and Environment of University of Florida. His research has focused on mechanical characterization and performance evaluation of bituminous materials, on fracture mechanics in bituminous materials and on recycling of reclaimed asphalt pavements. Dr. Tebaldi is former president of ISAP-International Society Asphalt Pavements, he is currently member of ISAP Board of Directors, Co-Chairman of ISAP Technical Committee on Asphalt Pavements and Environment, Chairman of RILEM Technical Committee 264-RAP on asphalt pavement recycling, associate editor for the Journal Materials and Structures and Editor in Chief of the Journal of Road Materials and Pavement Design.
Bituminous binder reinforced with carbon nanotubes and nanoclays

Prof. Orazio Baglieri
Politecnico di Torino (Polytechnic University of Turin)

Orazio Baglieri is associate professor at the Politecnico di Torino, where he teaches Road Design and Construction in the Master’s degree program in Civil Engineering.

He graduated at the Politecnico di Torino in 2001 and in 2005 he obtained his PhD degree cum laude at the University of Marche, Ancona.

From 2005 to 2011 he served as assistant professor at the University of Genoa. He was visiting scholar at the University of Wisconsin-Madison (WI) in 2007 and visiting professor at the Lyles School of Civil Engineering at Purdue University-West Lafayette (IN). He has been senior lecturer at the TTPU University of Tashkent (Uzbekistan) since 2013.

The area of expertise covers the design and construction of road pavements with particular emphasis placed on the characterization and modeling of paving materials. The main research topics include i) fatigue and healing characterization of bituminous binders, ii) creep-recovery testing of polymer modified binders, iii) reinforcement of bituminous binders with nano-sized materials, iv) re-use of waste materials and by-products in bituminous binders and mixtures.

He is the author of more than 50 papers, most of which published in international journals and conference proceedings. He has been the supervisor of 4 PhD students and the thesis supervisor of more than 70 Master’s students in the area of pavement engineering. He currently serves as deputy chair of the RILEM Technical Committee TC 278-CHA (Crack-Healing of Asphalt pavement materials) and is the team co-leader of Task Group TG2 (Laboratory experimentation). He has collaborated with several universities including the University of Wisconsin-Madison (WI), the Arizona State University-Tempe (AZ) and the North Carolina State University-Raleigh (NC).

He has been the Principal Investigator of a number of research projects financed through european, national and structural funds. He has taken on several academic roles including: member of the College of Doctoral School in Civil and Environmental Engineering at Politecnico di Torino, member of the PhD School Advisory Committee, Vice-coordinator of the College of Civil Engineering, Member of Research Committee of DIATI. He currently serves as the head of Civil Engineering at the Politecnico di Torino. He has been member of the steering committee and executive board of SIIV (Italian Society of Transportation Infrastructures) and member of CIRS (Experimental Interuniversity Road and Airport Research Center).
100 percent recycled asphalt for high modulus pavements

Dr. Lily Poulikakos
Empa Swiss Federal Laboratories for Materials Science and Technology

Lily Poulikakos received her B.S in architectural engineering from the university of Colorado, Boulder USA, M.S. in civil engineering from university of Illinois USA and PhD in civil engineering from ETH Zurich, Switzerland. She is currently a senior scientist at Empa, the Swiss federal laboratories for materials science and technology. Her research focus is on using multi scale characterization methods to study innovative bituminous materials chemically and mechanically. She is a leading member of Rilem as former deputy chair of the technical committee TC-231 NBM on nano bituminous materials and TC-252 CMB chemo mechanical characterization of bituminous materials and currently chair of TC-279 WMR on waste and marginal materials for roads. Dr. Poulikakos is the author of over 70 publications in peer reviewed journals and editor of Elsevier journal Construction and Building Materials CBM.
Asphalt binders – Shedding some light onto and into a black space

Prof. Bernhard Hofko

Bernhard Hofko is a civil engineer by training, holds a PhD from Vienna University of Technology and has moved towards material science in the last years. His research covers material characterization of asphalt mixtures and its constituent materials, as well as sustainable construction techniques. His focus is on combining physico-chemical and mechanical analysis on bituminous binders to improve the understanding of this complex material and bring information from chemical composition, microstructure and mechanical performance together for more durable binder materials. Bernhard is currently associate professor and head of the laboratory for road materials at the Vienna University of Technology.
Impact of Equivalent Young Modulus Ratio Values Between Material Layers on Pavement Structural Fracture Performance

Dr. Armelle Chabot
Institut français des sciences et technologies des transports, de l’aménagement et des réseaux (IFSTTAR) - The French Institute of Science and Technology, Development and Networks

Originally educated in Solid Mechanics at l’Université de Pierre et Marie Curie (Paris), Armelle Chabot developed theoretical models dedicated to the analysis of delamination in composite structures during her PhD thesis (1997) and several positions at ENPC. At IFSTTAR and through various international organization (RILEM, TRB, ARC), her Research Director activities aim to propose: experimental tools defining fracture debonding at the interface between pavement layers; quasi-analytical calculation tools for the diagnosis of degraded pavement structures and their adaptation to new uses.
Development of High-Performance Asphalt Mixes Using Elastomer Pellets

Prof. Hassan Baaj
Centre for Pavement and Transportation Technology (CPATT), University of Waterloo

Hassan Baaj is an Associate Professor at the University of Waterloo since 2014. He is the Norman W. McLeod Professor in Pavement Materials and the Director of the Centre for Pavement and Transportation Technology. Prof. Baaj has over 20 years of experience in pavement materials and design worldwide both in the private sector and academia. He is a Professional Engineer (P. Eng.) in Quebec and Ontario and member of several scientific and technical organizations. His research interest include sustainable pavement materials, self-healing materials, constitutive modelling of the behavior of construction materials, Life-Cycle Analysis and mechanistic pavement design.
Why Advanced Testing and for What Material Properties?

Prof. Hervé di Benedetto
University of Lyon/ENTPE

Professor Hervé Di Benedetto received his Diploma of Civil Engineering from the École Nationale des TPE (ENTPE, University of Lyon) and his PhD from the University of Grenoble in France. Currently he is Professor at ENTPE, University of Lyon. He is also, since 2011, a visiting Professor at the University of Quebec (ETS). He is member of “Laboratoire de Tribologie & Dynamique des Systèmes” (LTDS, UMR CNRS 5513) where he is leading the team “Geomaterials and Sustainable Constructions”.

Prof. Di Benedetto’s research activities focus on the study of mechanical, thermo-mechanical behaviour of geomaterials and structures, including experimental and modelling aspects. He is working in the fields of soil mechanics and road engineering. He has been the supervisor of more than 50 PhD students and of many research projects. He is the author of more than 200 publications. He is Editor-in-Chief of the International Journal “Road Materials and Pavement Design” [http://www.tandfonline.com/loi/trmp20].

Professor Di Benedetto is a well know expert, which is frequently invited or keynote speaker for international conferences. Among others, he delivered the 3rd Bishop Lecture of the Int. Soc. of Soil Mech. and Geotech. Eng. (ISSMGE).

He chaired Technical Committee 101 of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE) from 2009 to 2013. He was President from 2013 to 2015 of the International Society of Asphalt Pavement (ISAP) and is co-founder and present President of the Steering Group of the European Asphalt Technology Association (EATA). He was from 2009 to 2014 international representative of the Board of the Association of Asphalt Pavement Technologists (AAPT). He is a Fellow and officer member of the Technical Advisory Committee of “International union of laboratories and experts in construction materials, systems and structures” (RILEM), Convener in charge of cluster F “Bituminous Materials and Polymers”, from 2014 to 2018.
Full-scale validation of high performances bio-recycled asphalt mixtures for road pavements

Dr. Emmanuel Chailleux
Institut français des sciences et technologies des transports, de l’aménagement et des réseaux (IFSTTAR) - The French Institute of Science and Technology, Development and Networks

Emmanuel Chailleux obtained a PhD in 2000 from the École Centrale de Lyon (France) in polymer science field. Since 2004 he has been in permanent position at IFSTTAR in the pavement department. His current instigations deal with bituminous binder performances, including rheological properties, viscoelastic modelling, ageing and cracking phenomena. He also conducts researches to develop and characterise alternative binder from biomass. He is the chairman of the RILEM technical committee PIM (Phase and Interphase behaviour of bituminous Materials). He is the author of 43 research papers.
Laboratory characterization of cold recycled materials: how closely it represents field performance?

Prof. Alan Carter
École de technologie supérieure (ÉTS), Montréal, Canada

Alan Carter is a Professor in the Construction Engineering Department at École de technologie supérieure (ETS) in Montreal (Canada), and he's responsible of the Pavement and Bituminous Materials Laboratory (LCMB) at ETS. Professor Carter's research focuses mainly on cold recycling of bituminous materials, thermorheological characterization of bituminous materials, surface treatment and mechanistic-empirical pavement design. An active member of several international scientific organizations like ISAP (Director at large) and RILEM (Deputy Chair of RILEM Technical Committee 280-CBE “Multiphase characterisation of cold bitumen emulsion materials”, and secretary of the task group TG1 on cold recycling of the TC RAP), Professor Carter is also an associate editor for the Canadian Journal of Civil Engineering and a member of the editorial board of the Road Materials and Pavement Design journal.
Advancing Asphalt Sustainability: A Canadian Case Study

Prof. Susan L. Tighe
Centre for Pavement and Transportation Technology (CPATT), University of Waterloo

Susan Tighe, PhD, PEng, FCAE received her BASc (1993) in Chemical Engineering from Queen’s University, her MASc Civil Engineering (1997) and PhD (2000) in Civil Engineering from the University of Waterloo. She has been a Professional Engineer in the Province of Ontario since 1995 and has been a Professor in the Department of Civil and Environmental Engineering since 2000. She holds the Norman W. McLeod Endowed Chair in Sustainable Pavement Engineering and is Past President of the Canadian Society for Civil Engineering. She was appointed Deputy Provost and Associate Vice President Integrated Planning and Budgeting in July 2017.

Upon graduation from her BASc, she worked for the Ministry of Transportation of Ontario in various roles including: construction site engineer, geotechnical materials engineer and materials engineer writing standards and specifications. She also spent a sabbatical working in the private sector for a leading civil engineering construction company in Australia. Susan currently holds an Endowed Chair in Sustainable Pavement Engineering, is a founding member of the Centre for Pavement and Transportation Technology (CPATT) at the University of Waterloo. Prior to assuming the Director role which she held from 2010 - 2017, she served as the CPATT Associate Director of Research and Technology from 2005 to 2010. She is a past Canada Research Chair in Pavement and Infrastructure Management. She has successfully completed over 50 graduate students since starting at the University of Waterloo in 2000, many of whom are now in academic, public and private sector leadership positions and received the 2017 University of Waterloo Graduate Supervision Award.

Susan has gained national and international recognition for her outstanding contributions to the development, design, and management of sustainable concrete and asphalt transportation infrastructure. She has been involved with projects in Africa, India, Chile, China, Australia, New Zealand and throughout North America and is an author of over 400 technical publications in pavements and infrastructure, including being the principal investigator on the 2013 Transportation Association of Canada Pavement Asset Design and Management Guide and is involved in a number of national and international research projects. Her reputation as a scholar, educator, and professional engineer is well illustrated by the breadth of her honours and awards including Canada’s Top 40 Under 40, New College of Scholars Royal Society of Canada, Fellow Canadian Academy of Engineering and the Ontario Society of Professional Engineers Medal for Research and Development. She has also received academic Fellowships including the Erskine Fellowship at the University of Canterbury in New Zealand, the U.K. Royal Academy of Engineering University of Nottingham in England and the Queensland Pavement Center located at University of the Sunshine Coast Australia.
How to Define High Performance Asphalt Concrete (HPAC), called “EME” in France, for Cold Region

Prof. Daniel Perraton
École de Technologie Supérieure (ÉTS), Montréal, Canada

A professor of construction at ÉTS since 1996, Dr. Perraton researches the rheological behaviour of asphalt at the material scale, as well as mechanical and thermo-mechanical interactions at the structural scale. Based on a fundamental approach and applied science, research programs mainly look at manufacturing and paving operations and pavement design.
Asphalt Research in View of RILEM Cluster F (Bituminous Materials & Polymers) Convenor

Prof. Michael Wistuba
TU Braunschweig Institut für Strassenwesen, Germany

Michael P. Wistuba has a Ph.D. in Civil Engineering from Vienna University of Technology, 2002. He is head of chair of the Braunschweig Pavement Engineering Centre in the Department of Architecture, Civil Engineering and Environmental Sciences at Technische Universität Braunschweig, Germany. He is author or co-author of more than 55 research reports, 60 peer-reviewed papers in scientific journals and 120 articles published in conference proceedings. His publications cover the fundamental mechanisms that control behaviour and durability of asphalt materials and pavement systems, the technical testing to address performance properties, the composition of asphalt mixtures considering various additives and re-using reclaimed asphalt, the design of highway and airport pavements, and the development of road management concepts to achieve durability. He has acted in consulting projects in pavement engineering including federal highways in Germany, Austria, and Switzerland. He is convener of RILEM Cluster F on bituminous materials and polymers, steering group member of the European Asphalt Technology Association (EATA), scientific board member of Deutsches Asphaltinstitut (DAI), member of the German Road and Transportation Research Association (FGSV), and scientific board member of the Swiss Expert Association for Road and Transport Engineering (VSS). He has supervised more than 70 MS, and 20 PhD students. He is Editorial Board member of the Journal on Road Materials and Pavement Design (RMPD).