List of Tracks and Sessions

Theme	1 Performance Based Rigid Pavements
Track Title	**11 Modeling, performance prediction and design of rigid pavements**
Description	The session will cover design, structural and performance modeling of rigid and composite pavements. It will include interaction of curling and warping with axle loading, modeling of joints behavior and deterioration, fracture mechanics of concrete pavements, early age behavior modeling, etc. New technologies related to the design, construction and rehabilitation of various types of concrete pavements, including highway and airfield applications, will also be considered in the session scope.
Lead(s)	Lev Khazanovich
Theme	**2 Advances in Characterization and Modeling of Pavement Foundations**
Track Title	**21 Characterizing unbound aggregates for pavement design and performance prediction**
Description	Characterization of unbound aggregate layers in the current design methods (e.g. Mechanistic-Empirical Pavement Design Guide MEPDG or AASHTOWare Pavement ME software) is highly simplified. Important other material characteristics known to play a role in pavement performance include stress-dependent stiffness, anisotropy, more realistic permanent deformation modeling, moving wheel load effects, and degradation of properties over time (e.g., due to fouling from the subgrade). This session will examine the impacts of these and other factors on pavement performance.
Track Title	**22 Modeling the performance of chemically & mechanically stabilized pavement foundations**
Description	This session covers laboratory and field applications of transportation soil stabilization admixtures, such as lime, fly ash and other pozzolanic materials, cement, and bituminous (emulsions, foamed asphalt, etc.), and mechanical stabilization with geosynthetics (geotextiles, geogrids, etc.) in pavement design and construction practices and stabilized pavement layer performance modeling. In addition, other chemical and mechanical stabilizers, such as fiber reinforcement and other non-biodegradable reinforcement of geomaterials, and/or new and innovative products recently utilized can also be considered in the session scope.
Lead(s)	Erol Tutumluer
Theme	**3 Performance Based Flexible Pavement Design**
Track Title	**31 Functional pavement characteristics and vehicle-pavement interaction**
Description	This session covers all issues related to measuring, modeling and calibrating pavement noise, surface texture, skid resistance, and tire-pavement interaction and rolling resistance to improve functional performance of asphalt pavements.
Lead(s)	Karim Chatti

Track Title	32 Monitoring and modeling techniques to predict performance of existing pavement structures
Description	This session covers all issues related to NDT of pavement structures, tools and techniques for pavement back calculation, use of integrated sensing methods, smart pavements and use of information from such pavements. Furthermore, new and improved models for forward-calculation of pavement low-strain as well as high-strain responses, including various damage modes caused by the vehicles.
Lead(s)	Karim Chatti and M. Emin Kutay
Track Title	33 Advances and Evaluation of Pavement Analysis and Design Methodologies
Description	Past, present and future of methods and models for mechanistic design of pavements; analyzing pavement behavior and response under unconventional loads and autonomous vehicles; impact of tire-pavement interaction on performance of pavements.
Lead(s)	Elie Hajj and Ghassan Chehab
Theme	4 Materials and Pavement Models to Facilitate Design of Durable, Low Cost and Resilient Pavements
Track Title	41 Materials testing and performance modeling: calibration, verification, and validation
Description	This session covers all issues related to modeling the behavior and performance of materials at different length scales under different conditions as well as measuring material properties that drive such models (e.g. constitutive modeling of material behavior, computational models/methods to characterize properties and to simulate performance etc.). This session will cover experimental methods and models at different length scales and their linkage ranging from nanomechanical behavior of binders to damage-associated performance of mixtures.
Lead(s)	Yong-Rak Kim and Eshan Dave
Track Title	42 Research needs for design, modeling and performance prediction of recycled and green materials
Description	The last two decades has seen an increased use in several "green" technologies including recycled asphalt, warm mix asphalt, use of industrial and other waste products as asphalt modifiers and extenders. The use of these materials with existing design and modeling tools has highlighted gaps in the methods and techniques that were not apparent in the past. This session will cover papers related to work on better understanding and modeling of "green" asphalt materials including but not limited to recycled asphalt (e.g. optimising the value of material), recycled glass, recycled waste tire rubber, recycled waste plastics, contaminants from recycled materials etc.
Lead(s)	Zhen Leng and Rajib Mallick

Track Title	**43 Innovations for assessing vulnerability to, or impacts of climate change and climate adaptation technologies**
Description	This session will include papers that encourage innovations that make pavement and surfaces more resilient against the impacts of climate change. This information will ultimately provide data and research outcomes to increase knowledge and evidence for effectiveness of resilient technologies. Papers in this session will include but not be limited to work related to lab and field studies on effectiveness of climate adaptation technologies, developing performance prediction techniques that incorporate or are sensitive to climate impacts, innovations for assessing vulnerability to or impacts of climate change.
Lead(s)	Theuns Henning and Baoshan Huang
Track Title	**45 Multi-scale and multi-physics methods for performance prediction of paving materials**
Description	Analytical models for multiscale and multiphysics behavior have been extensively used for more accurate and efficient estimates of material behavior and performance (e.g. Hirsch model, Mori-Tanaka scheme); such models can also be used in development of efficient computational models. This session will include papers on the development, use and validation of such models.
Lead(s)	Shane Underwood and Yong-Rak Kim
Theme	**5 Mechanistic-Probabilistic Approaches for Modeling and Predicting Variability in Material and Pavement Properties**
Track Title	**51 Assessing variability and uncertainty in the characterization, analysis or design of road materials and pavement structures**
Description	Uncertainty quantification of the mechanical response and degradation of road materials is a necessary step to evaluate the structural reliability of pavement structures. Papers in this session will include topics dealing with the role of material variability in the mechanical behavior of asphalt mixtures and other road materials, as well as techniques to include reliability or uncertainty considerations in the design, evaluation, or construction stages of flexible pavement structures.
Lead(s)	Silvia Caro
Track Title	**52 Coupling mechanistic properties and probabilistic approaches to guide quality assurance practices**
Description	This session will include papers that address methods that couple performance prediction with variability to assess the quality of pavement construction. For example, reliable performance prediction capability allows owner agencies to compare what was constructed to what was designed and factor any difference in the cost of ownership into payment determinations made during pavement construction.
Lead(s)	Katherine Petros

Track Title	**53 Big data techniques for pavement performance prediction**
Description	This session will cover papers related to better use of huge datasets that are typically collected and then simplified to averages and standard deviations because of lack of tools or resources to analyze it all (e.g. field data area collected for many hours / days / months / years are typically simplified to a value per day to represent a huge amount of variability and thereby hide a lot of possible insight). The focus for papers would thus be on how researchers have managed to actually make use of the data and see the effects that small changes / variability that can be hidden by traditional statistical efforts have on the ultimate outcome.
Lead(s)	Wynand Steyn
Theme	**6 Chemo-Mechanics**
Track Title	**61 Chemo-mechanical tools for performance based design of binders**
Description	The chemical composition and phase behavior of bitumen depend on crude oil source and influence bitumen rheology and mechanical properties. This session will focus on papers that use simulations, modeling, or experiments to deepen an understanding of how this underlying chemistry influences the properties and overall performance of bitumen, asphalt binder-aggregate interactions, and the resulting asphalt mixtures. Examples include molecular behaviors within bitumen, gas and moisture diffusion in bitumen films, and bitumen adhesion to aggregate surfaces.
Lead(s)	Amit Bhasin, Michael Greenfield, Katerina Varveri
Track Title	**62 Genome based approaches to design asphalt mixtures**
Description	Coming soon.
Lead(s)	Linbing Wang
Theme	**Others**
Track Title	**70 Other topics**
Description	We welcome other interesting topics that authors think may not necessarily belong to a category above but are of interest to the community.
Lead(s)	Conference Committee
Theme	**Research on the Horizon**
Track Title	**80 Doctoral student poster presentation**
Description	This is a poster session intended for doctoral students who have a defined dissertation topic and are interested in collecting feedback from a broader community to enhance and promote their research.
Lead(s)	Conference Committee