

CPATT NEWS

SPRING 2017 ISSUE

NORMAN W. MCLEOD

CHAIR IN SUSTAINABLE PAVEMENT ENGINEERING

CPATT

CENTRE FOR PAVEMENT AND
TRANSPORTATION TECHNOLOGY



UNIVERSITY OF WATERLOO
FACULTY OF ENGINEERING
Department of Civil &
Environmental Engineering

CPATT NEWS

SPRING 2017 ISSUE

A MESSAGE FROM THE DIRECTOR

Welcome to our Spring 2017 addition of CPATT News!

In this newsletter we highlight some of the various projects underway at the Centre for Pavement and Transportation Technology (CPATT). This includes Highway Infrastructure Innovation Funding Program (HIIFP), on the assessment and improvement of the Ministry of Transportation Ontario's (MTO) imaging processing systems for usage in pavement management, Hydraulic Road Binders (HRB) as alternative sustainable and cost-effective stabilizers in the full-depth reclamation (FDR) process to improve the performance of low-volume roads, microscopic characteristics of polymer-modified asphalt using ESEM, and research collaborations between the University of Waterloo and Pontificia Universidad Católica, de Chile.

We also highlight some events from the past few months which includes a seminar by Dr. Judith Corley-Lay, Prof. Susan Tighe's interview with Steven Paikin on TVO's tv series "The Agenda", a new committee that has been formed with the CSCE, and a spotlight on Dr. John Emery.

There are also many special features on some of our current graduate students, and a feature on three faculty members from the Pontificia Universidad Católica, de Chile.

Should you have any questions related to our activities please do not hesitate to contact us.

Sincerely,

Susan L. Tighe, PhD, PEng, MCSCE
President Elect, Canadian Society for Civil Engineering
Norman W. McLeod Professor in Sustainable Pavement Engineering
Director Centre for Pavement and Transportation Technology
University of Waterloo, Department of Civil and Environmental Engineering

CPATT NEWS

SPRING 2017 ISSUE

1. Faculty Feature - Dr. Alondra Chamorro
2. Faculty Feature - Dr. Marcelo González
3. Faculty Feature - Dr. Marcelo González (cont'd)
4. Faculty Feature - Dr. Alelí Osorio
5. Faculty Feature - Dr. Alelí Osorio (cont'd)
6. Student Feature - Julia Huyan, PhD Candidate
7. Student Feature - Eskedil Melese, PhD Candidate
8. Student Feature - Andy Jian, MASc Candidate
9. Student Feature - Changjiang Kou, PhD Candidate
10. Highlights & Events - The Agenda
11. Highlights & Events - CSCE Loyalty Hub
12. Highlights & Events - CPATT events
13. Highlights & Events - Dr. John Emery
14. Student & Staff Spotlight
15. Seminar Feature - Dr. Judith Corely-Lay
16. Research Feature - Pontificia Universidad Católica, de Chile
17. Research Feature - Pontificia Universidad Católica, de Chile (cont'd)
18. Research Feature - PaveScan Technology
19. Research Feature - PaveScan Technology (cont'd)
20. Research Feature - Cematrix & Lafarge Demo and Trade Show
21. Research Feature - Cematrix & Lafarge Demo and Trade Show (cont'd)
22. Contact Information

You can follow us on Facebook or visit our official University of Waterloo CPATT webpage, for up-to-date news and events, by clicking on the links below:



NORMAN W. MCLEOD

CHAIR IN SUSTAINABLE PAVEMENT ENGINEERING

CPATT

**CENTRE FOR PAVEMENT AND
TRANSPORTATION TECHNOLOGY**

FACULTY FEATURE

ALONDRA CHAMORRO, PhD (UNIVERSITY OF WATERLOO)

Dr. Alondra Chamorro is an Assistant Professor in the Department of Construction Engineering and Management at the School of Engineering of Pontificia Universidad Católica, de Chile and Research Associate at the National Research Centre for the Integrated Management of Natural Hazards (CIGIDEN). She has received her Bachelor and Master degrees from the Pontificia Universidad Católica, de Chile and her PhD in Civil Engineering from the University of Waterloo, under the supervision of Dr. Susan Tighe. Dr. Chamorro's area of expertise is in pavement engineering and infrastructure management. She has participated in projects with The World Bank, Ministry of Transportation of Ontario, Canada, Ministry of Public Works of Chile, Ministry of Housing and Urbanism of Chile, R&D&I Projects (Fondef and Fondecyt) funded by the Chilean Council of Scientific and Technological Research (CONICYT) from the Ministry of Education of Chile, and Innovation Projects funded by The Chilean Economic Development Agency (CORFO).

A sample of current projects includes:

- Research and Development of Models to Quantify and Mitigate the Risk of Natural Hazards over Road Networks.
- Development of performance models for network level management of sealed rural.
- Research and development of Solutions for Managing Urban Pavement Networks.



The seismic effect on Chilean roads.

FACULTY FEATURE

MARCELO GONZÁLEZ, PhD (UNIVERSITY OF WATERLOO)

Dr. Marcelo González is an Assistant Professor in the Department of Construction Engineering and Management at the Pontificia Universidad Católica de Chile (PUC). He received his Bachelor's degree from the Universidad de Santiago de Chile (2002), his MSc from PUC (2006) and his PhD from the University of Waterloo (2014) under the supervision of Dr. Susan Tighe. His PhD thesis was focused on the application of Nanotechnology to develop the next generation of Portland cement concrete pavements surfaces. Nowadays, Dr. González's research is primarily focused in the area of "Systems and Construction Technology with Portland Cement Concrete (PCC)". Marcelo is leading a small group of 2 PhD students, 2 Master students and 2 Undergrad Research Assistants.

In March of 2016, Dr. González and Dr. Tighe initiated a "Seed Fund" grant in order to explore cutting edge collaborative research; the project covered two different topics: (a) Nanomaterials to enhance PCC durability and sustainability and (b) Accelerated Construction. Regarding the first project a mineral from Chile was investigated in order to create a photocatalytic PCC which is able to digest NO_x gases; the preliminary results obtained from chemical and physical characterization using advance techniques indicated that it is a potential to enhance the performance when the mineral is compared with Anatase (which is at present the best photocatalytic material). Regarding to the second research project an exploration was made in order to define a specific research under the umbrella of the

topic of "accelerated construction"; a new project will be presented soon to a grant competition focused on the "accelerated construction for PCC pavements for underground mining" since Chile has a big underground construction for copper exploitation among other minerals.



Pictured from left to right, is Dr. Marcelo González, Mr. Daniel Pickel (PhD candidate at the University of Waterloo), Marcel Lebleu (Canadian Ambassador of Chile), Professor Susan Tighe, Dr. Alondra Chamorro and Dr. Alelí Osorio. The group attended a banquet hosted by Marcel Lebleu at the Canadian Embassy in Chile, promoting research and educational collaborations between Chile and Canada.

FACULTY FEATURE

MARCELO GONZÁLEZ CONT'D

A sample of other current projects includes:

- Recycling waste rock (WR) from tunnel excavations to make PCC.
- Rheology of Portland cement concrete (PCC).



Pictured left to right, recycled waste rock from tunnel excavations to make PCC and a length change test of hydraulic cement mortars.



FACULTY FEATURE

ALELÍ OSORIO, PhD (UNIVERSITY OF WATERLOO)

Dr. Alelí Osorio is a Paraguayan civil engineer specializing in road engineering with an emphasis on topics of materials, pavement structural design and management, and analysis of vulnerability, risk and resilience of road networks. She enjoys working on projects that include the generation of solutions to road infrastructure, and looking for positive impacts on citizens and countries.

She received her undergraduate degree at the Universidad Nacional de Asunción, Paraguay. Since the beginning of her career she has worked in road engineering. During her time in Paraguay, she worked at the Ministry of Public Works on a Paraguayan project funded by the Inter-American Development Bank. The programs included the improvement of rural roads. She was dedicated to the design and supervision of rural road works, which included the feasibility evaluation of projects, production of bidding packages, consultant and contractor bid evaluations, control of design projects, inspection of rural road works in the field, and the review of consultant final reports of construction work.

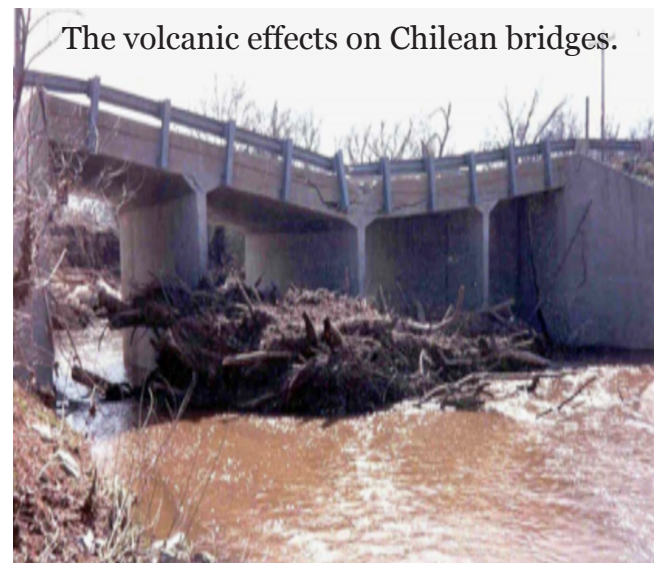
After finalizing her masters, she worked for four years at the CIIV – Centro de Ingeniería e Investigación Vial of DICTUC S.A. on different research and consulting projects, for private and public sectors. The main research done was on pavement materials such as: asphalt concrete, emulsion, granulars, and stabilizers (ashes and chlorides). There were also projects completed on pavement structural design of urban roads and highways. These projects included activities of material analysis in the laboratory, structural design, proof of materials at real scale in the field, construction, and monitoring.

Alelí did her PhD with a dual degree agreement between the PUC and University of Waterloo, working as a researcher in a project for Development of an Urban Pavement Management System funded by the Chilean government and public agencies. Her doctoral thesis included the development of some components of that system, including a methodology for urban pavement evaluation, an overall condition index, performance models, and maintenance standards of urban pavements. The system developed in this project is currently ready to be implemented and applied by public agencies in Chile...

FACULTY FEATURE

ALELÍ OSORIO CONT'D

Currently, she is working as a researcher and project engineer at PUC on several projects, such as: performance models of sealed rural roads, the development of risk and mitigation models of road networks exposed to natural hazards that integrate the application of concepts of infrastructure management, sustainability, risk analysis and resilience. Furthermore, she participated in Innovation and Entrepreneurship as the Leaders in Innovation Fellowship (LIF) Program organized by the Royal Academy of Engineering in London, UK.



STUDENT FEATURE

JULIA HUYAN, PhD CANDIDATE

Ju Huyan joined CPATT in September 2016 as a PhD candidate, under the supervision of Professor Tighe. She received her Bachelor's degree majoring in Communication Engineering in 2013, and Master's degree majoring in Traffic Information Engineering and Control in 2016, from Chang'an University, China. She had the experience of using state-of-art technologies for pavement distress detection which contributes for building high performance pavement management system. Her current research interests include embracing image processing, data mining, machine learning techniques in pavement distress detection, evaluating pavement distress prediction models, and pavement maintenance and rehabilitations strategies.

She is currently working with the Highway Infrastructure Innovation Funding Program (HIIFP), on the assessment and improvement of the Ministry of Transportation Ontario's (MTO) imaging processing systems for usage in pavement management. This project is conducted by the cooperation of CPATT at the University of Waterloo, York University and the MTO. The primary objectives include three parts: (1) Exploit traceable, objective, practical, repeatable, and transparent approaches to assess the accuracy of

ARAN-9000 system and its subsystems and develop system and subsystem calibration and quality control procedures; (2) Develop innovative algorithms to efficiently and effectively process image data acquired by ARAN-7000 for pavement distress detection; (3) Carry out comprehensive review of the data from the ARAN-9000 and ARAN-7000 and relate that to overall pavement performance; examine predominant distresses for high and low volume facilities and see how best these can be incorporated into image-based standards and guidelines for pavement management.

Projects sponsored by:



STUDENT FEATURE

ESKEDILMELESE, PhD CANDIDATE

Eskedil is a PhD candidate working with Professor Susan Tighe and Professor Hassan Baaj. He has joined CPATT in January 2016. He received his Bachelor of Science degree in Civil Engineering from Arba Minch University in 2005, and Master of Science degree in Road and Transportation Engineering from Addis Ababa University in 2014. He started his career as a Graduate Assistant at Arba Minch University and then had worked for ten years as a Pavement/Materials Engineers with one of the road consulting firms in Ethiopia.

His current research focuses on the use of Hydraulic Road Binders (HRB) as alternative sustainable and cost-effective stabilizers in the full-depth reclamation (FDR) process to improve the performance of low-volume roads. The objectives of his research are to assess the impact of the hydraulic road binders in the long-term performance of low-volume roads when used as a stabilizer in the full-depth reclamation process.

His research tasks have both laboratory and field experiments (pictured below). The research also aims at calibrating the AASHTO MEPDG and Portland Cement Association's performance prediction models and other shrinkage cracking prediction models based on the results of the laboratory and field test data.



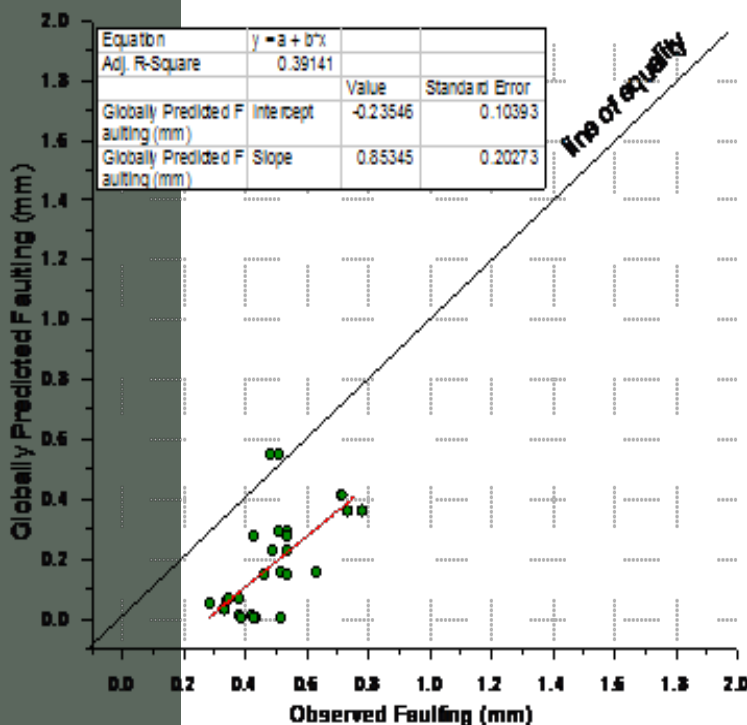
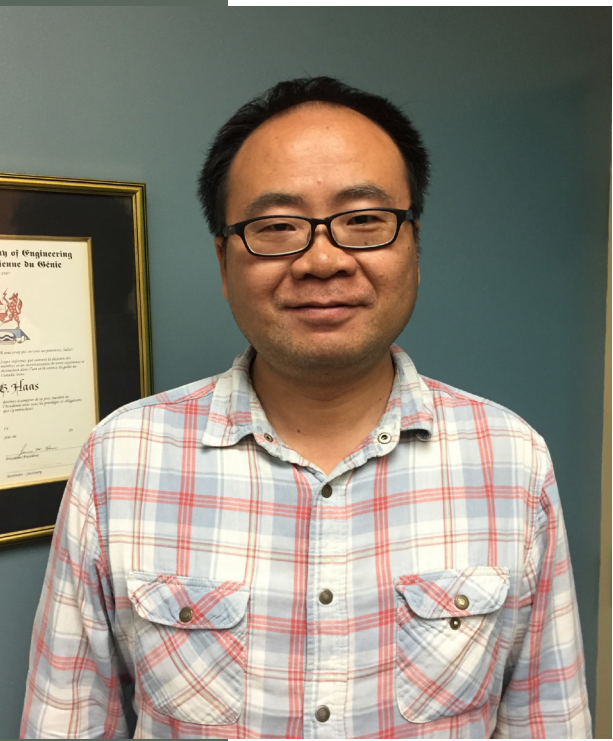
STUDENT FEATURE

ANDY JIAN, MASc CANDIDATE

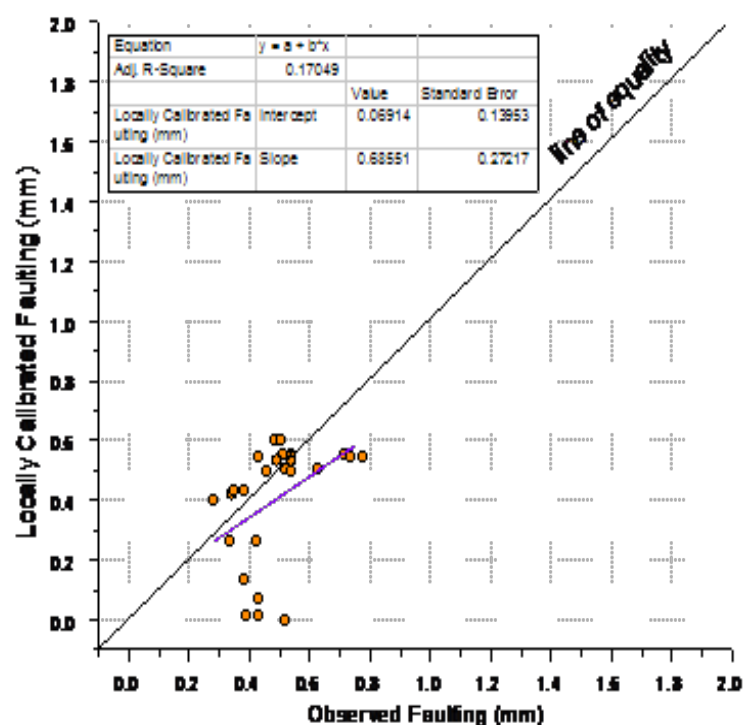
Andy joined CPATT in September 2015, as a MASc candidate under the supervision of Professor Susan Tighe. Currently he is working on local calibration of the MEPDG prediction models using more accurate field measurements.

Previous to this, Andy received a Bachelor's degree in 1991 and a Master's degree in 1997, from Chang'an University, China, majoring in Highway and Urban Road Engineering.

Andy has been serving as the Deputy Chief Engineer for FHCC (CCCC First Highway Consultants Co.). During his time with FHCC, he has completed projects that include: an engineering feasibility study and various design and consulting projects. Now his work is more focused on the local calibration of the distress and performance models in AASHTOW are. He also participated on the Spragues road project, which is the collection of pavement data to monitor the concrete overlay as a rehabilitation method.



Global Calibration Results.



Local Calibration Results.

STUDENT FEATURE



CHANGJIANG KOU, PhD CANDIDATE

Changjiang Kou is an international visiting graduate student in the Department of Civil Engineering, at the University of Waterloo, under the supervision of Professor Hassan Baaj. He started his PhD in the Department of Civil and Science Engineering, at Yangzhou University, China. He is now primarily focusing on the characteristics and evaluation of polymer-modified asphalt, and recycling asphalt binders. He has expertise in traffic pollution treatment and eco-road system construction, as well as the modelling between performances and microscopic parameters of polymer-modified asphalt by using fluorescent microscopy.

During his study with CPATT, he has mainly worked with Research Associate, Dr. Peter Mikhailenko on the microscopic characteristics of polymer-modified asphalt using ESEM.

His Research Group in China, under the supervision of Professor Peng Xiao has been supported by various agencies including the National Natural Science Foundation of China, the Ministry of Housing and Urban-Rural Development of China, the Transportation Department of Jiangsu Province, and Jiangsu Transportation Co., Ltd.

In his spare time, Changjiang enjoys reading literary works, especially Chinese ancient poetry, which he also writes. Below you will find a link to one of his recent poems:

http://blog.sina.com.cn/s/blog_660ba49f0102x9kc.html

HIGHLIGHTS & EVENTS

THE AGENDA, WITH STEVE PAIKIN

Potholes are no doubt a major pet peeve among Ontario's drivers, and lately many communities have increasingly had to deal with even bigger holes as the ground beneath sinks away. On March 9, 2017, Steve Paikin with TVO's "The Agenda", interviewed Professor Susan Tighe from the University of Waterloo on what is happening to Ontario roads and what can be done about it.

You can watch the full interview, by clicking on the picture link below:



HIGHLIGHTS & EVENTS

CSCE LOYALTY HUB

The Canadian Society for Civil Engineering (CSCE) who is a learned society created to develop and maintain high standards of civil engineering practice in Canada and to enhance the public image of the civil engineering profession, has formed a new committee, led by:

- Professor Susan Tighe - Committee Head
- Peter Calcetas - Chair, National Member Services
- Stephanie Dalo - Vice Chair, National Member Services
- Peter Seibert - Chair, Communications Committee
- Jessica Rossi - Committee Administrator
- Drew Barlow - Head Technical Adviser
- Max Midwinter - Civil Engineering Co-op, University of Waterloo
- Spencer Arbuckle - Civil Engineering Co-op, University of Waterloo
- Ben Ho - Civil Engineering Co-op, University of Waterloo
- Jacob Terry - MASc candidate, University of Waterloo

The committee has come together to create a “Loyalty Hub” for our current and future members. Our concept:

- The CSCE Hub will be an expansion of the CSCE website to provide a Professional Network for members, unlike any other in use today.
- Online community in which members can interact with mentors, employers, each other, and the CSCE itself. This will include news and social feeds, as well as, an expanded job posting section.
- Each member will be able to create an expanded membership profile including listings of professional development courses, education, work experience.
- Will be created in line with a new loyalty initiative program geared towards Students and Young Professionals as well as a direct link to current CSCE mentorship programs.
- Creates a framework for the CSCE to later expand upon and, provides the CSCE the ability to offer a wider range of services to members such as secure online payments for events, membership fees etc. Additionally will allow CSCE to interact in new ways with corporate partners in the future.

For more information and to view a mockup of the CSCE Hub, please visit **www.hubcsce.ca**. This idea will also be presented at the 2017 CSCE Annual Conference in Vancouver.



HIGHLIGHTS & EVENTS



BABY ON BOARD!

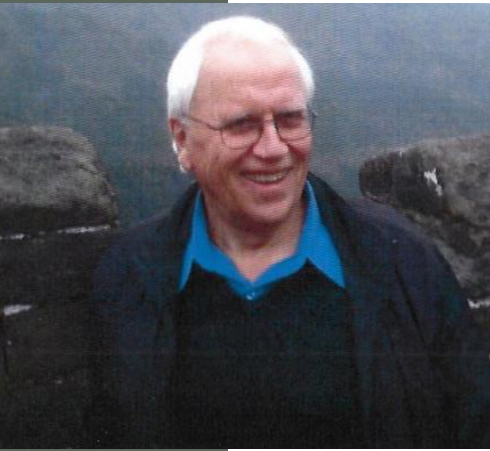
Grace Abimbola Olaleye one of CPATT's newest PhD students, welcomed a beautiful baby boy into the world. David Oluwarotimi Oyeyi, pictured on the left was born on March 16, 2017, weighing a healthy 6lbs 9oz. We wish Grace and baby David all the best (and many sleep filled nights)!



END OF TERM POTLUCK

On Thursday, April 13, 2017, the CPATT group got together for their end of term potluck. As seen on the left, each member of the team brought a unique dish to serve up. Many salads, cakes, dumplings and dips were enjoyed by all! Thank you to everyone that came out and participated in this event. Next on the agenda, a Spring BBQ!

HIGHLIGHTS & EVENTS



JOHN EMERY, PhD

CPATT and the University of Waterloo would like to recognize Dr. John Emery who has been a valuable asset to the transportation industry and has made many notable contributions.

John has over 55 years of Canadian/International applied research and teaching experience, consulting in rural, semi-urban, urban, industrial, and airport flexible (asphalt), rigid (concrete), and composite (asphalt over concrete) pavements engineering, from un-surfaced and resource roads (Colombia) to expressways (407 ETR) and runways (Pearson).

John has considerable experience with “newer” road technology developments: warm mix asphalt technologies and research (JEGEL 2008 Green Machine Ultrafoam asphalt mix designs and particularly moisture susceptibility testing); transportation asset management systems (TAMS – developed a maintenance equipment asset management system for the World Bank in China); sustainability/green roads (Mitacs research at McMaster University and Member, Advisory Board of the Norman W. McLeod Chair in Sustainable Pavement Engineering at the University of Waterloo); climate change impacts on civil infrastructure (contributor, sections on Canada, China, Colombia, and United States to the World Road Association 2012 Report - Dealing with the effects of climate change on road pavements); and long-life (“perpetual”) pavements technology (2006 to 2008, JEGEL Project Manager and Principal Engineer for the design and construction of the Henan Expressway Development Limited 27 km Expressway Project to implement Superpave and long-life flexible (asphalt) pavement technology, including high-performance subbase/base, in China).

When presenting the Ontario Hot Mix Producers Bleeds Black Award to John in December, 2014, Dr. Susan Tighe, a colleague at the University of Waterloo, pointed out John’s numerous awards and extensive work on writing and research in the field, and praised him for developing many standards and specifications which have influenced millions of lives.

“

His passion to support education and high quality work is evident in his many achievements, she said. I am particularly delighted to be presenting this award on behalf of OHMPA as John has also been a mentor to me over the years. - Dr. Susan Tighe

STUDENT & STAFF SPOTLIGHT

- **Gulfam Jannat** has completed her PhD Defense entitled “Developing Cost-Effective Pavement Maintenance and Rehabilitation Schedules: Application of MEPDG Based Distress Models and Key Performance Index” on March 24, 2017. Congratulations, Gulfam!
- **Yashar Azimi Alamdary** has completed his Comprehensive Exam entitled “Investigation of Different Factors Affecting Asphalt Cement Aging and Durability” on April 5, 2017. Congratulations, Yashar!
- **Adam Schneider** has completed his MASc Seminar entitled “Sustainable Alternative Materials in Unbound Granular Layers of Pavement Structures” on April 6, 2017. Congratulations, Adam!
- **Donghui Lu** (pictured bottom left with her committee members) has completed her Comprehensive Exam entitled “Pavement Flood Risk Assessment and Management” on March 2, 2017. Congratulations, Donghui!
- **Shenglin Wang** has completed his Comprehensive Exam entitled “Use of Hydraulic Road Binders (HRBs) for Subgrade Stabilization in Low-Volume Roads (LVRs) Under Effects of Freeze-Thaw Cycles” on May 2, 2017. Congratulations, Shenglin!
- **Eskedil Melese** has completed his Comprehensive Exam entitled “Full-Depth Reclamation with Hydraulic Road Binders for Improved Performance of Low Volume Roads” on May 3, 2017. Congratulations, Eskedil!
- **Zaid Alyami**, a PhD Candidate in CPATT recieved 3rd place for his poster at CNAM.
- **Dr. Cristina Torres-Machi**, a current Postdoctoral Fellow with CPATT, has accepted a tenure track faculty position with the University of Colorado, Boulder. Dr. Torres-Machi will start her new position in June of this year. Thank you for all of your hard work and dedication, Cristina. We wish you all the best!
- **Sonia Rahman** (pictured bottom right), a Research Assistant with CPATT



SEMINAR FEATURE

JUDITH CORLEY-LAY, PhD



CPATT and the Norman W. McLeod Chair in Sustainable Pavement Engineering hosted a seminar on Thursday, March 23, 2017, entitled “PMS in the Development of Transportation Asset Management Plans”, presented by Dr. Judith Corley-Lay. Dr. Judith Corley-Lay was the leading authority in Pavement Management Engineering for over 26 years. She worked for the North Carolina Department of Transportation (NCDOT) as a Pavement Management specialist, and has also belonged to many professional organizations and society affiliations, including: AASHTO Joint Technical Committee on Pavements, Transportation Research Board, and the National Cooperative Highway Research Program.

Congratulations to Dr. Corley-Lay who has been appointed The Director of the National Center for Pavement Preservation (NCPPE) effective April 3, 2017. More information about NCPPE can be found here: www.pavementpreservation.org

ABSTRACT State agencies are required to have a certified transportation asset management plan as part of MAP-21 legislation. This seminar identified the key components of the asset management plan, and describe 3 specific analyses conducted within NCDOT using a Pavement Management System (PMS). PMS was used to develop the catalog of assets. While only National Highway System roadways were required in the legislation, NCDOT included its extensive system of secondary roads since all except municipal streets are state maintained. Gap analysis was done to evaluate the impact on pavement condition and system backlog associated with fluctuations in funding. The Gap analysis also considered other gaps in resources, personnel, knowledge, and policy. Risk analysis was done using a technique that included items related to weather events, climate change, material shortages, and significant changes in demographics. Each state will set performance targets for pavements, bridges and 8 other performance areas. The asset management plan must include a 10 year financial plan on how targets will be achieved and how asset condition will be maintained. The goal of the asset management plans is to assure that states are balancing infrastructure condition as well as goals in logistics, system performance, safety and other areas.

RESEARCH FEATURE

COLLABORATION WITH PONTIFICIA UNIVERSIDAD CATÓLICA, DE CHILE

The Centre for Pavement and Transportation Technology at the University of Waterloo and the Pontificia Universidad Católica, de Chile (PUC) in Santiago have been forming and strengthening bond for several years. In fact, two professors in PUC's Construction Engineering department obtained their PhD degrees at UW under the supervision of Professor Susan Tighe. The two universities have similar approaches to research and technology and have often worked together in various ways in the past.

More broadly, the countries of Chile and Canada have many similarities which can encourage research collaboration despite being in different hemispheres of the globe. Both countries are resource-rich with localized population centres, while their geographic scales lead to connectivity challenges ranging between vastly different climatic zones. Particularly in the field of pavement, similarities exist in the fields of pavement management, specifically with respect to natural phenomena, materials, and construction.

Building on these relationships and similarities, a seed-fund project was initiated between Professor Tighe and Professor Marcelo Gonzalez H. The focus of this project was in the fields of accelerated construction practices and innovative concrete materials, and involved several graduate students from both universities in addition to Dr. Tighe and Dr. Gonzalez.

As part of this project, Daniel Pickel travelled to PUC in Santiago for the month of March to work closely with the team there. The goal of the visit was to produce research papers within the previously mentioned fields, while also fostering relationships and knowledge transfer. Daniel worked closely with Leonardo Brescia N. and Claudia Retamoso L. on the production of several research papers. The topics included accelerated construction practices and defining the practices therein, and the use of TiO₂ in concrete as a photocatalytic agent.

At the conclusion of the month, Daniel and Professor Tighe took part in a research seminar focused on innovations in concrete construction along with Dr. José Muñoz (SES Group & Associates) and Dr. Igor de la Varga (US FHWA). The seminar was attended by over 130 members of industry, academic institutions, and agencies.

RESEARCH FEATURE

PONTIFICIA UNIVERSIDAD CATÓLICA, DE CHILE CONT'D

Following the seminar, Daniel was able to travel within the country of Chile, including visits to Puerto Varas, Frutillar, the island of Chiloé, and Valparaíso. During this time, Daniel was able to make several hikes and enjoy the local culture in different parts of the country.

“

The visit was very productive in terms of academic papers and research, but I think that the relationships I made and grew will be the biggest benefit to me. I'm very grateful to have been given this opportunity by Dr. Tighe and Dr. Gonzalez. I'd also like to thank Marcelo's family for warmly welcoming and taking care of me, Edith Garrido G. for the friendly accommodations, and Dr. Aleli Osorio L. and her family for the outstanding hospitality! Muchas Gracias! -Daniel Pickel



Dan at the end of a hike to find la gran cascada at Las Cascadasalmas on Chiloé.

RESEARCH FEATURE

GSSI VISITS CPATT TO DEMONSTRATE PAVSCAN TECHNOLOGY

On April 18th, CPATT was happy to welcome GSSI (Geophysical Survey Systems Inc.) for a demonstration of their pavement scanning technology. We were joined by Jan Kesik from GSSI in Canada as well as his colleague Rob Sommerfeldt, an Application Specialist who came out from the GSSI offices in New Hampshire, USA. The audience included GSSI customers from Montreal as well as researchers at CPATT interested in learning more about the devices.

The presentation began with Jan going over GSSI as a company and Rob going over the radar technology that is used in their scanning systems, allowing engineers to inspect underneath structures without the need to physically remove the surface. The students benefited from learning more about how radar technology worked with non-destructive methods, particularly with ground penetrating radar systems used to examine pavement and what was underneath it.

After a lunch, a live demonstration of the PaveScan and UtilityScan systems was organized at the University of Waterloo parking lot. The PaveScan was demonstrated for its ability to identify the quality of pavement after it has been laid through a detailed radar scan of the top of the pavement structure. Based on the scan, the device was able to recommend the best coring locations. The SIR was able to read radar signals form deeper, under the pavement surface, and create a 2D profile of the pavement structure, allowing the user to identify utilities underneath the structure.

The CPATT team would like to thank GSSI for demonstrating their technology at our venue and look forward to future collaborations.

RESEARCH FEATURE

PAVSCAN TECHNOLOGY CONT'D



GSSI PavScan demonstrations at the University of Waterloo.

RESEARCH FEATURE

CEMATRIX & LAFARGE DEMO AND TRADE SHOW

On April 27th, the CPATT team took part in a technical demonstration of Lafarge products at a site in Caledon, ON. Around 15 members came from Waterloo, including Prof. Susan Tighe.

After a BBQ lunch, the demonstration started with a pouring of a culvert using Lafarge's Cematrix technology. Cematrix is a low strength cement paste fill mixture that combines cement, water and a foaming agent. This forms non-interconnected pores inside the cement matrix, making it very lightweight. The material is noted for being easy to pour due to not containing gravel. Additionally, the material can be poured at very low temperature.

The second part of the demonstration consisted of a slab pour using Agilia self-compacting concrete (SCC). This technology allows for pouring without the need for external vibration by using high quantities of water and cementitious materials. The material is also able to achieve a fairly smooth surface, and the finishing was demonstrated to cap off the visit.



Cematrix culvert pour demonstration.

RESEARCH FEATURE

CEMATRIX & LAFARGE DEMO AND TRADE SHOW CONT'D



Agilia slab pour demonstration.

A congratulations goes to CPATT's Julia Huyan, who won a large screen television in a door prize raffle. Thank you to Cematrix and Lafarge for organizing this event, and allowing CPATT to participate in the demonstrations.

CONTACTS

SPRING 2017 ISSUE

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