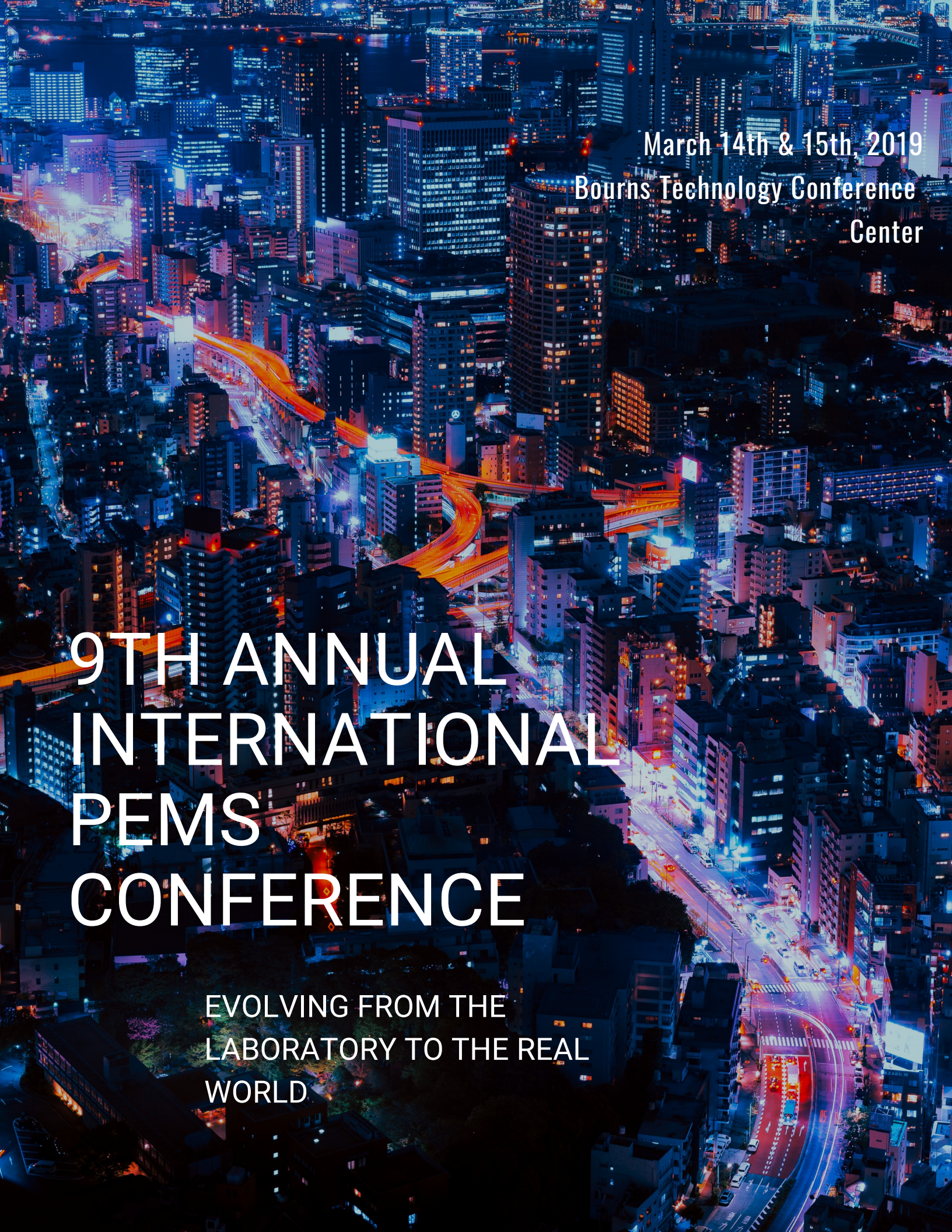

March 14th & 15th, 2019

Bourns Technology Conference Center

9TH ANNUAL INTERNATIONAL PEMS CONFERENCE

EVOLVING FROM THE LABORATORY TO THE REAL WORLD

UC RIVERSIDE | CE-CERT

WELCOME

Welcome to the 9th Annual International Portable Emission Measurement Systems (PEMS) Conference, presented by the University of California at Riverside (UCR) Bourns College of Engineering Center for Environmental Research and Technology (CE-CERT). For nine years, the PEMS International Conference has served as a highly recognized forum that gathers leaders and top researchers from industry, government and academia to discuss the evolving nature, application and significance of PEMS in emission and fuels research. Participants and presenters over the course of this conference have ranged in background, bringing together individuals working with a broad range of measurement systems, including fully compliant regulatory PEMS (1065 Compliant PEMS) and small systems, which include everything from micro PEMS (μPEMS), nano PEMS (nPEMS), in-situ sensors, portable activity measurement systems (PAMS), to Real Emissions Assessment and Logging (REAL).

At this year's conference, we will explore the application and benefit of all measurement systems that are portable for the characterization and compliance of internal combustion sources under in-use conditions. The idea is to accurately measure these sources where, when, and how much they occur so data driven policies can be developed to protect the climate and health. The focus in 2019 will be on Evolving from the Laboratory to the Real-World, with various topics that will seek to answer the most pressing questions in today's world. Topics covered will include the latest developments in compliant and non-compliant PEMS; the benefits of PAMS and prediction of in-use emissions; and new developments for on-road measurements from an international perspective, such as Real Driving Emissions.

We would also like to extend a special thank you to our sponsors of this year's conference. Their support and participation is instrumental in our ability to present a successful and world-renowned conference that will continue to host leaders from all areas of measurement systems for many years to come. Thank you, also, to our CE-CERT faculty, staff, and students who work vigorously behind the scenes to coordinate the implementation of the PEMS conference. Finally, thank you to you, our participants—through your continued support of this academic conference, we have been able to explore some of the most pressing questions surrounding PEMS, cultivate cutting edge technology, and begin development of the next generation of on-board sensors, analysis, and reporting algorithms.

Thank you,
Kent Johnson, Ph.D.
Principal Investigator, Emissions and Fuels Research
UC Riverside CE-CERT

AGENDA DAY 1

7:00AM	Breakfast and Registration
8:00AM	Opening Remarks and Keynote
9:00AM	Government Policy
10:00AM	Break
10:30AM	Policy and Technology
11:30AM	Lunch
12:30PM	Sensors and Mini-PEMS
2:30PM	Break
2:50PM	International Research Developments
3:50PM	Break
4:00PM	Panel Discussion
6:00PM	Evening Reception

AGENDA DAY 2

7:30AM	Breakfast
8:00AM	Research Developments
10:20AM	Break
10:50AM	2019 Exposure Measurements
11:50AM	Lunch
12:00PM	2019 Featured Lecture Spatial Big Data Management: A Brief History, State, and Applications
1:00PM	Closing Remarks

Poster Presentations will be on display during both days of the conference during breakfast, lunch, and breaks.

Please visit with our exhibitors throughout both days of the conference during breakfast, lunch, and breaks to learn more about their organization and available products.

Day 1 - Thursday March 14, 2019

7:00AM – 8:00AM	CHECK-IN AND BREAKFAST	
8:00AM – 9:00AM	OPENING STATEMENTS AND INTRODUCTIONS	
	Matthew Barth Director and Professor, UCR Center for Environmental Research and Technology	Welcome and Opening Remarks
	Mark Fuentes, California Air Resources Board	Key Note Presentation
9:00AM – 10:00AM	GOVERNMENT POLICY	
	Paul Henderick California Air Resources Board	California's Real Emissions Assessment Logging (REAL) Initiative: On-road Vehicles Will Track Their Own NOx and GHG Emissions
	Ricardo Suarez-Bertoa European Commission - Joint Research Center	On-road Emissions of Passenger Cars Beyond Real-Driving Emissions Test
	Kent Johnson University of California, Riverside	UCR's Vision for in-use Emissions and their Measurement
10:00AM – 10:30AM	BREAK	
10:30AM – 11:30AM	POLICY AND TECHNOLOGY	
	John Needham U.S. Environmental Protection Agency	Challenges in Developing and Advancing Mini-PEMS for Gathering Emission and Activity Data for Nonroad, Light- and Heavy- Duty Vehicle Collection Programs
	Matthew Spears Engine Manufactures Association	Assessment of a Candidate Metric for a New Paradigm of Real-World NOx Emissions Compliance for Heavy-Duty on-Highway Engines

	Dave Miller 3DATX	Equipment Miniaturization & Big Data: Meeting Global Emissions Monitoring Challenges
11:30AM – 12:30PM	LUNCH	
12:30PM – 2:30PM	SENSORS AND MINI-PEMS	
	Frank Heepen Global Product Manager	HORIBA's Micro Smart Emissions Measurement System
	Matti Maricq Ford Motor Company	Investigating Measurement Uncertainties Related to the Use of Miniature PEMS for Direct Tailpipe Emissions Under Controlled Laboratory Conditions
	Gloria Pak California Air Resources Board	Measurement Interference of On-board NOx Sensors Due to NH3 Cross-Sensitivity for Gasoline Light-Duty Vehicles
	Christian Adams Multicore Photonics	NSF Sponsored NOx Sensor Research for Diesel Combustion Exhaust Monitoring
	Imad A. Khalek SwRI	Spark-Plug Sized Exhaust Emission Sensors: Progress Made and Next Steps
	Ehsan Hosseini California Air Resources Board	Application of Machine Learning Methods for Development of Heavy Duty Vehicle Emission Inventories
2:30PM – 2:50PM	BREAK	
2:50PM – 3:50PM	INTERNATIONAL RESEARCH DEVELOPMENTS	
	Carol Wong Environmental Protection Department, Hong Kong SAR Government, China	Recent Findings in on-Board Vehicle Emission Measurement in Hong Kong
	Rasik Pondicherry West Virginia University	On-board Sensor-based Characterization of Real-World NOx Emissions and Heavy-duty Vehicle Activity in California
	Victor Valverde European Commission - Joint Research Center	Pollutant Emissions From Road Transport: State of Play of the European Union Regulations

3:50PM – 4:00PM	BREAK	
4:00PM – 5:00PM	PANEL DISCUSSION	
	Kent Johnson	University of California, Riverside
	Carl Fulper	U.S. Environment Protection Agency
	Matthew Spears	Engine Manufacturers Association
	Mark Fuentes	California Air Resourcess Board
5:00PM	END OF DAY 1	
6:00PM – 9:00PM	EVENING RECEPTION: JOIN US AT THE COLLEGE OF ENGINEERING –CENTER FOR ENVIRONMENTAL RESEARCH AND TECHNOLOGY (CE-CERT) LOBBY FOR AN EVENING NETWORKING RECEPTION.	

Make sure to visit our exhibitors and view our poster presentations throughout both days of the conference.

Day 2 - Thursday March 15, 2019

7:30AM – 8:00AM	BREAKFAST	
8:00AM – 10:20AM	RESEARCH DEVELOPMENTS	
	Christopher Frey North Carolina State University	Variability in Vehicle Energy Use and Emissions Based on Cycle Average Speed and Vehicle Specific Power
	Carl Fulper, U.S. Environmental Protection Agency	Challenges in and Approaches for Conducting Heavy-Duty Truck Activity Collection Programs
	Daryl Bear Mesilla Valley Transportation Solutions	Avoiding or Correcting In-Use Test Variability for Improved Detection of Fuel-Efficiency and Emissions Differences
	Cody Howard California Air Resources Board	Approaches to Determining Threshold Values for Snap-Shot Emissions Measurements
	Hiroaki Minoura Asia Center for Air Pollution Research	Transient RDE NOx Emissions from Diesel City Bus in Xiamen, China
	Karl Ropkins University of Leeds	Real-World Motorcycle Emissions
	Susumu Sato Tokyo Institute of Technology Department of Systems and Control Engineering	The Estimation and the Prediction of Real World Driving Emission from Diesel Passenger Vehicle Based on
10:20AM – 10:50AM	BREAK	
10:50AM – 11:50AM	EXPOSURE MEASUREMENTS	
	Nick Molden Emissions Analytics	The Importance of Particles and Carbon Dioxide in Air Pollution and In-Vehicle Human Exposure
	Douglas Booker National Air Quality Testing Services Ltd	Introducing PIMS: The Pollution In-Cabin Measurement System

	Heejung Jung UC Riverside	Development of a Standard Testing Method for Vehicle Cabin Air Quality Index
11:50AM – 12:00PM	LUNCH (SIT DOWN TO CONTINUE INTO FEATURED LECTURE)	
12:00PM – 1:00PM	2019 FEATURED LECTURE	
	Amr Magdy Ph.D, UC Riverside, Assistant Professor, Computer Science & Engineering Co-founder, Center for Geospatial Sciences	Spatial Big Data Management: A Brief History, State, and Applications
1:00PM – 1:15PM	CLOSING REMARKS	
1:15PM	END OF DAY 2	

2019 POSTER PRESENTATIONS

CARL DESOUZA	Kings College London	REAL-WORLD IN-USE PORTABLE EMISSION MEASUREMENTS OF NON-ROAD MOBILE MACHINERY USED ON ACTIVE CONSTRUCTION SITES IN LONDON
BATISHAHE SELIMI	West Virginia University	MACHINE LEARNING APPROACHES TO HANDLE “BIG DATA” FROM PAMS DEVICES
CHAS FREDERICKSON	UC Riverside	MEASUREMENT OF PARTICULATE MATTER AND GASEOUS EMISSIONS FROM COMMERCIAL HARBOR CRAFT DURING REAL-WORLD OPERATION
FILIZ KAZAN	West Virginia University	EVALUATION OF MINIATURE, IN-SITU GAS SENSORS USING THE DYNAMIC ENVIRONMENTAL SIMULATION CHAMBER (DESC)
CARL DESOUZA	Kings College London	REAL-WORLD IN-USE PORTABLE EMISSION MEASUREMENTS OF NON-ROAD MOBILE MACHINERY USED ON ACTIVE CONSTRUCTION SITES IN LONDON
MEET PATEL	Michigan Technological University	COMPARISON OF HORIBA PN-PEMS WITH LABORATORY GRADE PN SYSTEMS
JAMIE PARNELL	Cambustion	HIGH-RESOLUTION NOX EMISSIONS MEASUREMENT FROM IN-SERVICE BUSES DURING TRANSIENTS
SEBASTIÁN TOLVETT CARO	Universidad Tecnológica Metropolitana, Chile	PORTABLE SYSTEM FOR MEASUREMENT OF VEHICULAR EMISSIONS IN CHILE
ROBERT ANDERSON	TSI	A NEW PORTABLE TEST INSTRUMENT FOR THE RELIABLE MEASUREMENT OF PARTICLE NUMBER EMISSIONS FROM COMBUSTION ENGINES DURING PERIODIC TECHNICAL INSPECTION

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