

# 10TH ANNUAL INTERNATIONAL PEMS VIRTUAL CONFERENCE

*From the Laboratory to the Real World:  
Understanding Community Impacts*



**March 11th & 12th, 2021**





# 10<sup>th</sup> ANNUAL INTERNATIONAL PEMS CONFERENCE

March 11th & 12th  
2021

**FROM THE LABORATORY TO THE REAL WORLD:  
UNDERSTANDING COMMUNITY IMPACTS**



**CERT.UCR.EDU/PEMS**

Thank you for your interest in 10th Annual International Portable Emissions Measurement Systems (PEMS) Virtual Conference, presented by the University of California at Riverside (UCR) Bourns College of Engineering Center for Environmental Research and Technology (CE-CERT). For ten years, the PEMS International Conference has served a highly recognized forum that gathers 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 ( $\mu$ PEMS), nano PEMS (nPEMS), in-situ sensors, portable activity measuring systems (PAMS), to Real Emissions Assessment and Logging (REAL).

At this year's conference we will explore the notion of *From the Laboratory to the Real World: Understanding Community Impacts*. The focus in 2021 will be on seeking answers to the most pressing questions in today's world pertaining to climate and health. 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.

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





# AGENDA DAY 1

All times are in Pacific Time (PT)

9:00 AM

## Opening Remarks and Keynote

### Matthew Barth

Director and Professor, University of California, Riverside CE-CERT

*Opening Remarks*

### Sterling Imfeld

Engine Testing Center at the National Vehicle and Fuel Emissions Laboratory, EPA

*Keynote Presentation*

10:00 AM

## Exposure & Measurements

### Daisy Thomas

3DATX

*New Approaches to Periodic Technical Inspection (PTI) Vehicle Emission Tests*

### Nick Molden

Emissions Analytics, Ltd.

*Vehicle Interior Air Quality, Pollution Exposure in the Cabin and the Opportunity for Standardized International Ratings Transport Energy / Emissions Research (TER)*

### Sebastián Tolvett

Metropolitan University of Technology, Chile

*Evaluation of TDI Engine No Emissions in Chile Measured with PEMS*

10:50 AM

## Government Policy

### Tim Dallman

International Council on Clean Transportation (ICCT)

*Using Vehicle Remote Sensing Emissions Data to Inform Low-emission Transportation Policies and Actions*

### William (Bill) Robertson

California Air Resources Board (CARB)

*Sensor Based Emissions: A Regulator Perspective On 'REAL' and Future Directions*

### Kent Johnson

University of California, Riverside CE-CERT

*On-Board Sensing, Analysis, and Reporting (OSAR)*

12:00 PM

## Break

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# AGENDA DAY 1

All times are in Pacific Time (PT)

1:00 PM

## Research & Development

### Kotaro Tanaka

Ibaraki University, Japan

*Ammonia Measurement in Exhaust using SEMS and PEMS*

### Susumu (Mu) Sato

Tokyo Institute of Technology

*The Real-world Emissions Prediction with Deep Learning Based on the SEMS Measurement Data*

### Robin Smit

Transport Energy / Emission Research (TER)

*An Overview of Measuring and Modelling Real-world Vehicle Emissions in Australia*

### Imad Khalek

Southwest Research Institute (SwRI)

*Laboratory Investigation of NOx/NH3 Sensors for Onboard Emissions Monitoring*

2:05 PM

## Panel Discussion

### Kent Johnson

University of California, Riverside, CE-CERT

### Tim French

Truck & Engine Manufacturers Association & Chicago Law Partners

### Sterling Imfeld

United States Environmental Protection Agency

### William (Bill) Robertson

California Air Resources Board (CARB)



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# AGENDA DAY 2

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9:00 AM

## Research & Development

**Zissis Samaras**

Aristotle University of Thessaloniki

*Measuring Automotive Exhaust Particles Down to 10nm - "DownToTen" Project*

**Kay-Oliver Denking**

CPK Automotive

*NOx-Sensor for Emission - and Immission - Measurement*

**Ehsan Hosseini**

California Air Resources Board (CARB)

*Calculation of a GHG Emissions Rate for Transportation Network Companies in California*

**Karl Ropkins**

University of Leeds

*Progress: AQEval and Early Research Outputs*

**André Forcetto**

Environmental Company of Sao Paulo State  
CETESB

*Advances in Real Driving Emissions in Brazil*

**Phil Roberts**

Horiba

*RDE Plus - A Road to Rig Development Methodology for Whole Vehicle RDE Compliance*

10:40 AM

## Sensing & Policy

**Zissis Samaras**

Aristotle University of Thessaloniki

*On-board Monitoring with Advanced Exhaust Sensors*

**Yi Tan**

California Air Resources Board

*Assessing the Ability of On-board NOx Sensors to Reflect Full Cycle NOx Emissions*

**Cavan McCaffery\***

University of California, Riverside

*PEMS testing studies at UC Riverside CE-CERT*

**Chris Ruehl**

California Air Resources Board

*Comparison of Early (model yr. 2010-11) and Later (2013-14) On-road Performance of Selective Catalytic Reduction (SCR) on Heavy-duty Engines*

11:45 AM

## Closing Remarks

**Kent Johnson**

University of California, Riverside, CE-CERT



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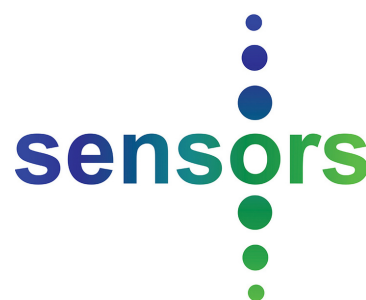


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