

PEMS 2022

11th Annual International Conference

Moving Towards Onboard Sensing, Analysis, and Reporting (OSAR)

Preliminary Agenda

March 17 – 18, 2022
Riverside, California

Hosted by: The University of California, Riverside
College of Engineering - Center for Environmental Research and Technology (CE -CERT)

DAY 1 – THURSDAY, MARCH 17, 2022

- **Breakfast & Check-in: 7:00 – 8:00 AM**

- *Location: Marriott Riverside at the Convention Center | 3400 Market Street, Riverside, CA 92501*

- **Opening Remarks and Keynote Speaker: 8:00 – 9:00 AM**

Matthew Barth | University of California – Riverside, CE-CERT

Chris Frey | U.S. EPA

- **Government Policy: 9:00 – 10:00 AM**

Non-road Mobile Machinery in Service Monitoring Based on PEMS-JRC Experiences in the Development of the Regulatory Proposal

Roberto Gioria | European Commission, Joint Research Centre

Mini-PEMS: A Technical Review on What is Needed for Using it as a Screening and Compliance Tool

Carl Fulper | U.S. EPA

Onboard Sensing, Analysis, and Reporting (OSAR)

Kent Johnson | University of California - Riverside, CE-CERT

- **Break 1: 10:00 – 10:30 AM**

- **New approaches/methods: 10:30 – 11:30 AM**

Advanced Portable Emissions Measurement System for New Measurement Components (NH₃, N₂O & SPN₁₀)

Shun Fukami | Horiba

Performance Evaluation of a MiniPEMS: Results of Intercomparison Studies and Implications for its Potential Use for Road-side Inspection, Fleet Screening, and Road Worthiness

Daisy Thomas | 3DATX Corporation

Low NO_x Real World Cycle PEMS and NO_x Sensor

Chris Sharp | Southwest Research Institute

- **Lunch: 11:30 AM – 12:40 PM**

- **International Research Developments: 12:40 – 2:20 PM**

Easier, Cheaper, Deeper: A Novel Approach to Tailpipe Emission Measurement

Nick Molden | Emissions Analytics

ECM's miniPEMS and microPEMS Systems and Components

Ron Patrick | Engine Control and Monitoring (ECM) Company

Measuring Emissions from a Heavy-duty Vehicles Under Real World Conditions Using On-board Sensors and Advanced Portable Instruments

Ricardo Suarez-Bertoa | European Commission, Joint Research Centre

RDE Plus – Rapid Characterization of Vehicle and Powertrain Performance and Emissions using Digital Twin, Powertrain-in-the-Loop and Chassis Dynamometer Methodologies

Phil Roberts | Horiba Mira Ltd.

Real World Emissions Analysis Using Sensor-based Emissions Measurement System for Light-duty Direct-Injection Gasoline Vehicle

Susumu (Mu) Sato | Tokyo Institute of Technology

Virtual Presentation

- **Break 2: 2:20 – 2:40 PM**

- **International Research Developments (cont.): 2:40 – 3:40 PM**

*** Some attendees may leave during this portion to tour the ARB facility ***

Developing a Low-cost PEMS for Flex Fuel Cars

Andre Luiz Silva Forcetto | Universidad de Sao Paulo

The Influence of Portable and Built-in Ionizers on Ozone Concentration in Vehicle Cabin

David Mendez-Jimenez, Grace Johnson, Heejung Jung | University of California -
Riverside, CE-CERT

*Improved Vehicle Cabin Air Quality by Control of Air Recirculation Using
Spatiotemporally-Resolved Interactive Map*

Herve Borrel | Airlib Inc.

- **Break 3: 3:40 – 4:00 PM**
- **Panel Discussion 4:00 – 5:00 PM**

TBA

- **PEMS 2022 Reception: 6:00 – 9:00 PM**
 - *Location: CE-CERT | 1084 Columbia Ave, Riverside, CA 92507*

DAY 2 – FRIDAY, MARCH 18, 2022

- **Breakfast & Opening: 7:30 – 8:00 AM**

- *Location: Marriott Riverside at the Convention Center | 3400 Market Street, Riverside, CA 92501*

- **Research Developments: 8:00 – 10:20 AM**

NH₃ and N₂O Real World Emissions Measurement from a CNG Heavy Duty Vehicle Using Brake Activity of a Heavy-Duty Vehicle

Brenda Lopez, Kent Johnson, Heejung Jung | University of California - Riverside, CE-CERT

Development of a Mini-PEMS with High HC Capability

Scott Miers & Brian Eggart | Michigan Technological University

MiniPEMS use for Advanced Inspection and Maintenance Methods to Identify High Emitters

Daisy Thomas | 3DATX Corporation

NO_x Real World Emissions Measurement from a Euro 6d-ISC Light Duty Vehicle Using On-Board Sensors

Tommaso Selleri | European Commission, Joint Research

Collecting Real-World Evidence on Factors Affecting Bus Fleet Non-Exhaust Emissions

Karl Ropkins | University of Leeds

Low-cost On-board Electrostatic PM Sensing for Continuous Compliance Monitoring and Geofencing

Patrick Thompson | EmiSense Technologies, LLC

“Opening the “Can” - Exploiting the Wealth of Data Within a Vehicle’s ECM

Carl Fulper | U.S. EPA

- **Break: 10:20 – 10:50 AM**

- **New approaches/methods: 10:50 – 11:50 AM**

Communication with Unfamiliar Off-Road Vehicle Controller Area Network (CAN) Systems in the Field

Andrew Burnette | MeasureMission

Two More Speakers TBA

- **Lunch: 11:50 AM – 12:00 PM**
- **Featured Speaker: 12:00 – 1:00 PM**

Community Level Environmental Policy Developments

Kathryn Higgins | South Coast Air Quality Management District

- **Closing Remarks: 1:00 – 1:15 PM**