Chun-Wai Lee, Physical Scientist in EPA's National Risk Management Research Laboratory

Air and Energy Management Division
Mailing Address

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Area of expertise:

- Characterization and control of emissions from oxygen enriched combustion power plants under development to capture CO_2 emissions.
- Evaluation of multipollutant control approaches for reducing emissions of criteria pollutants and hazardous air pollutants from combustion of fossil fuels and wastes.
- Investigation of mercury species transformation and removal in post-combustion environments. Efforts include field studies and experimental investigation to utilize existing selective catalytic reduction (SCR) nitrogen oxides (NO_x) control systems to enhance mercury removal.
- Investigation of control of hazardous air pollutant (HAP) emissions from industrial sources such as power plants, cement kilns, and waste incinerators. Efforts include field studies and experimental investigation for ensuring emissions of HAPs such as mercury and dioxins from industrial sources remain controlled continuously.

Select publications:

Lee, C.W., Zhao, Y., Lu, S., Stevens, W.R. Catalytic Destruction of a Surrogate Organic Hazardous Air Pollutant as a Potential Co-benefit for Coal-Fired Selective Catalytic Reduction Systems. Energy and Fuels, 30, 2240-2247, 2016.

Lee, C.W., Serre, S.D., Zhao, Y., Lee, S., and Hastings, T.W. Mercury Oxidation Promoted by a Selective Catalytic Reduction Catalyst under Simulated Powder River Basin Coal Combustion Conditions. Journal of the Air & Waste Management Association, 58, 484-493, 2008.

Lee, C.W., Tabor, D.G., and Cowen, K.A. Environmental Technology Verification (ETV) Test of Dioxin Emission Monitors. Journal of Material Cycles and Waste Management, 10, 38-45, 2008.

Lee, C.W., Srivastava, R.K., Ghorishi, S.B., Karwowski, J., Hastings, T.W., and Hirschi, J.C. Pilot-Scale Study of the Effect of Selective Catalytic Reduction Catalyst on Mercury Speciation in Illinois and Powder River Basin Coal Combustion Flue Gases. Journal of the Air & Waste Management Association, 56, 643-649, 2006.

Lee, C.W., and Imamgawa, T. Paper Fiber as a Carbon Source for the De Novo Formation of Polychlorinated Dioxins and Furans. Journal of Material Cycles and Waste Management, 8, 133-139, 2006.

Lee, C.W., Srivastava, R.K., Ghorishi, S.B., Hastings, T.W., and Stevens, F.M. Investigation of Selective Catalytic Reduction Impact on Mercury Speciation under Simulated NOx Emission Control Conditions. Journal of the Air & Waste Management Association, 54, 1560-1566, 2004.

View more research publications by Chun-Wai Lee

Education:

- Ph.D., Pennsylvania State University, University Park, PA; Fuel Science, 1989
- M.S., Pennsylvania State University, University Park, PA; Fuel Science, 1983
- B.S., Portsmouth Polytechnic, Portsmouth, United Kingdom; Applied Chemistry, 1980

Professional Experience:

Projects and Workgroups

- Key member of a joint EPA-DOE-EPRI field study program for investigating the co-benefit effect of selective catalytic reduction used for reducing emissions of nitrogen oxides on the speciation and control of mercury emissions from coal-fired power plants.
- Key member of EPA China Air Clean Energy Strategy Workgroup. The workgroup conducted a collaborative field study with Chinese researchers for improving energy efficiency with resulting lower emissions of toxic pollutants from cement plants in China.
- EPA representative of the Biomass Conversion Interagency Work Group (includes DOE, USDA, EPA, DOD, NSF and other agencies). It developed and implemented mechanisms to improve interagency coordination, promote interagency knowledge sharing, and track biomass conversion Research, Development, and Deployment across the Federal sector.

Board and Committee Memberships

- Board member, Research Triangle Park Chapter of Air and Waste Management Association

Awards and Honors

- EPA James W. Craig Pollution Prevention Leadership Award for reducing emissions of toxic pollutants and CO_2 from cement plants in China and catalyzing a national program to reduce them at the source, 2009.
- EPA Silver Medal for outstanding efforts to develop, implement, and integrate EPA activities to reduce contamination of air, water, toxics, and hazardous wastes.
- EPA Bronze Medal for establishment of an impactful research and evaluation program addressing multimedia environmental consequences associated with bromine addition at coal-fired power plants, 2017.
- EPA Bronze Medal for contributing to the protection and safety of American public through development of safe disposal methods for terrorist hazards in air or on surface, 2005.
- Japan Science and technology Agency Fellow for conducting collaborative research to reduce dioxin emissions from waste combustion at the National Institute for Resources and Environment, Tsukuba, Japan, 2000.
- The Combustion Institute 2017 Distinguished Paper Award: Formation and Control of Pollutants and Greenhouse Gases, Soot, Organics, and Ultrafine Ash from Air- and Oxy-fired Coal Combustion. Proceedings of the Combustion Institute 36, 4029-4037, 2017.