William (Bill) Linak, Chemical Engineer in EPA's National Risk Management Research Laboratory

Air and Energy Management Division
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Areas of expertise: Current areas of research include multiple projects designed to characterize emissions and investigate mechanisms controlling organic and ash transformations, particle formation, metal partitioning, and metal speciation from fossil and bio fuel combustion, waste incineration, and open burning. New research is examining environmental issues associated with oxygen enhanced coal (oxy-coal) combustion.

Select publications:

DeMarini, D.M., Warren, S.H., Lavrich, K., Flen, A., Aurell, J., Mitchell, W., Greenwell, D., Preston, W. Schmid, J.E., **Linak, W.P.**, Hays, M.D., Samet, J.M., and Gullett, B.K., Mutagenicity and Oxidative Damage Induced by an Organic Extract of the Particulate Extract from a Simulation of the Deepwater Horizon Surface Oil Burns, Environmental & Molecular Mutagenesis, 58 162-171 (2017).

He, F., **Linak, W.P**., Deng, S., and Li, F., Particulate Formation from a Copper Oxide-Based Oxygen Carrier in Chemical Looping Combustion for CO2 Capture, Environmental Science & Technology, 51(4) 2482-2490 (2017).

Andersen, M.E., Modak, N., Winterrowd, C.K., Lee, C.W., Roberts, W.L., Wendt, J.O.L., and **Linak, W.P.**, Soot, Organics, and Ultrafine Ash from Air- and Oxy-Fired Coal Combustion, Proceedings of the Combustion Institute, 36 4029-4037 (2017).

Mutlu, E., Warren, S.H., Ebersviller, S.M., Kooter, I.M., Schmid, J.E., Dye, J.A., **Linak, W.P.**, Gilmour, M.I., Jetter, J.J., Higuchi, M., and DeMarini, D.M., Mutagenicity- and Pollutant-Emission Factors of Solid-Fuel Cookstoves: Comparison to Other Combustion Sources, Environmental Health Perspectives, 124(7), 974-982 (2016).

Mutlu, E., Warren, S.H., Matthews, P.P., Schmid, J.E., Kooter, I.M., **Linak, W.P.**, Gilmour, M.I., and DeMarini, D.M., Health Effects of Soy Biodiesel Emissions: Bioassay-Directed Fractionation for Mutagenicity, Inhalation Toxicology, 27(11) 597-612 (2015).

Mutlu, E., Warren, S.H., Matthews, P.P., King, C., Walsh, L., Kligerman, A.D., Schmid, J.E., Janek, D., Kooter, I.M., **Linak, W.P.**, Gilmour, M.I., and DeMarini, D.M., Health Effects of Soy Biodiesel Emissions: Mutagenicity Emission Factors, Inhalation Toxicology, 27(11) 585-596 (2015).

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Education:

- Ph.D., University of Arizona, Tucson, AZ; Chemical Engineering, 1985
- M.S., University of Arizona, Tucson, AZ; Chemical Engineering, 1980
- B.S., Michigan State University, East Lansing, MI; Chemical Engineering, 1977

Professional Experience:

- Principal Investigator (1986-present)
- 2014 Embassy Science Fellow – Advisor to Embassy Warsaw and Consulate Krakow to evaluate the state of clean coal technologies in Poland
- Editor for Air Pollution section, Environmental Engineering Science (2010-present)
- Patents:
    - U.S. Patent 5972301: Minimizing Emissions of Hexavalent Chromium from Combustion Sources (Issued 10/26/99)
    - U.S. Patent 5619937: Sorbent Melts for Capture of Metals from Combustion Gases (Issued 4/15/97)
    - U.S. Patent 5233933: Method of Reducing Transient Emissions from Rotary Kiln Incinerators and Container for Attaining Same (Issued 8/10/93)

Awards and Honors

- 36th International Symposium on Combustion Distinguished Paper Award (Formation and Control of Pollutants and Greenhouse Gases) - for published paper entitled: “Soot, Organics, and Ultrafine Ash from Air- and Oxy-Fired Coal Combustion,” 2017
- EPA Scientific and Technological Achievement Award – Level III, 2015
- EPA Scientific and Technological Achievement Award – Honorable Mention, 2013
- EPA Scientific and Technological Achievement Award – Honorable Mention, 2013
- EPA Scientific and Technological Achievement Award – Level II, 2010
- EPA Scientific and Technological Achievement Award – Level III, 2010
- EPA Scientific and Technological Achievement Award – Honorable Mention, 2010
- 32nd International Symposium on Combustion Distinguished Paper Award (Stationary Combustion) - for published paper entitled: “Relationships between Composition and Pulmonary Toxicity of Prototype Particles from Coal Combustion and Pyrolysis,” Proceedings of the Combustion Institute, 2009
- EPA Bronze Medal – Combustion Emission Toxicity Testing Team - for designing, building and operating a state-of-the-art combustion inhalation exposure facility, 2008
- EPA Scientific and Technological Achievement Award – Level III, 2008