Curriculum Vita

David R. Cocker III

Professor and Chair
Honors Faculty Fellow
Ford Motor Company Endowed Chair
University of California, Riverside
[redacted]

EDUCATION

[redacted]
Ph.D., Environmental Engineering Science with minor in Chemical Engineering, California Institute of Technology, Pasadena, CA.

[redacted]
B.S., Environmental Engineering & B.S., Chemistry
University of California, Riverside, CA.

EMPLOYMENT

07/2018 – current	Professor and Chair Department of Chem & Environmental Engineering, UC Riverside. Honors Faculty Fellow, UC Riverside Honors Program
07/2016 – 06/2018	Professor Department of Chem & Environmental Engineering, UC Riverside Honors Faculty Fellow, UC Riverside Honors Program
07/2011 – 06/2016	Professor Department of Chem & Environmental Engineering, UC Riverside.
07/2006 - 06/2011	Associate Professor Department of Chem & Environmental Engineering, UC Riverside.
01/2001 - 06/2006	Assistant Professor Department of Chem & Environmental Engineering, UC Riverside.
04/1996 - 06/1996	Lecturer Department of Chemical Engineering, UC Riverside.
03/1996 - 06/1996	Post Graduate Researcher CE-CERT, UC Riverside.
04/1994 - 03/1996	Student Assistant CE-CERT, UC Riverside.
09/1992 - 03/1996	Student Tutor Learning Center, UC Riverside.

PEER REVIEWED PUBLICATIONS

Total Number:156, H-index:55; Citations: 12,100+

1. Griffin, R.J., Cocker, D.R., Seinfeld, J.H. 1999. Incremental aerosol reactivity: Application to aromatic and biogenic hydrocarbons. Environmental Science and Technology. 33 p.2403-2408.
2. Yu, J., Cocker, D.R., Griffin, R.J., Flagan, R.C., Seinfeld, J.H. 1999. Gas-Phase Ozone Oxidation of Monoterpenes: Gaseous and Particulate Products. Journal of Atmospheric Chemistry. 34 p.207-258.
3. Griffin, R.J., Cocker, D.R., Daddub, D., Seinfeld, J.H. 1999. Estimate of Global Atmospheric Organic Aerosol From Oxidation of Biogenic Hydrocarbons. Geophysical Research Letters. 26 p.2721-2724.
4. Yu, J., Griffin, R.J., Cocker, D.R., Flagan, R.C., Seinfeld, J.H., Blanchard, P. 1999. Observation of Gaseous and Particulate Products of Monoterpene Oxidation in Forest Atmospheres. Geophysical Research Letters. 26 p.1145-1148.
5. Griffin, R.J., Cocker, D.R., Flagan, R.C., Seinfeld, J.H. 1999. Organic Aerosol Formation From the Oxidation of Biogenic Hydrocarbons. Journal of Geophysical Research. 104 p.3555-3567.
6. Kalberer, M., Yu, J., Cocker, D.R., Flagan, R.C., Seinfeld, J.H. 2000. Aerosol Formation in the Cyclodhexene/Ozone System. Environmental Science and Technology. 34 p.4894-4901.
7. Cocker, D.R., Flagan, R.C., Seinfeld, J.H. 2001. State-of-the-Art Chamber Facility for Studying Atmospheric Aerosol Chemistry. Environmental Science and Technology. 35 p.2594-2601.
8. Cocker, D.R., Whitlock, N., Flagan, R.C., Seinfeld, J.H. 2001. Hygroscopic Properties of Pasadena, California Aerosol. Aerosol Science and Technology. 35 p.637-647.
9. Cocker, D.R., Clegg, S.L., Flagan, R.C., Seinfeld, J.H. 2001. The Effect of Water on Gas-Particle Partitioning of Secondary Organic Aerosol: I. a-Pinene/Ozone System. Atmospheric Environment. 35 p.6049-6072.
10. Cocker, D.R., Mader, B.T., Kalberer, M., Flagan, R.C., Seinfeld, J.H. 2001. The effect of water on gas-particle partitioning of secondary organic aerosol: II. m-Xylene and 1,3,5-Trimethylbenzene Photooxidation systems. Atmospheric Environment. 35 p.6073-6085.
11. Sharma, D.N., Sawant, A.A., Uma, R., Cocker, D.R. 2003. Preliminary Chemical Characterization of Particle-Phase Organic Compounds in New Delhi, India. Atmospheric Environment. 37 p.4317-4323.
12. Jimenez, J.L., Bahreini, R., Cocker, D.R., Zhuang, H., Varutbangkul, V., Flagan, R.C., Seinfeld, J.H., O'Dowd, C., Hoffmann, T. 2003. New Particle Formation From Photooxidation of Diiodomethane. Journal of Geophysical Research. Vol. 108: #4318 p.25 pages.
13. Sawant, A.A., Na, K., Zhu, X., Cocker, D.R. 2004. Chemical Characterization of Outdoor PM2.5 and Gas-Phase Compounds in Mira Loma, California. Atmospheric Environment. Vol. 38: 33 p.5517-5528.

14. Na, K., Sawant, A.A., Song, C., Cocker, D.R. 2004. Primary and Secondary Carbonaceous Species in the Atmosphere of Western Riverside County, California. Atmospheric Environment. Vol. 38: 9 p.1345-1355.
15. Cocker, D.R., Shah, S.D., Johnson, K.C., Miller, J.W., Norbeck, J.M. 2004. Development and Application of a Mobile Laboratory for Measuring Emissions From Diesel Engines I. Regulated Gaseous Emissions. Environmental Science and Technology. Vol. 38: 7 p.2182-2189.
16. Cocker, D.R., Shah, S.D., Johnson, K.C., Zhu, X., Miller, J.W., Norbeck, J.M. 2004. Development and Application of a Mobile Laboratory for Measuring Emissions From Diesel Engines II. Sampling for Toxics and Particulate Matter. Environmental Science and Technology. Vol. 38: p.6809-6816.
17. Sawant, A.A., Na, K., Zhu, X., Cocker, K.M., Butt, S., Song, C., Cocker, D.R. 2004. Characterization of PM2.5 and Selected Gas-Phase Compounds at Multiple Indoor and Outdoor Sites in Mira Loma, California. Atmospheric Environment. Vol. 38: 37 p.6269-6278.
18. Collins, D.R., Cocker, D.R., Flagan, R.C., Seinfeld, J.H. 2004. The Scanning DMA Transfer Function. Aerosol Science and Technology. Vol. 38: 8 p.833-850.
19. Shah, S.D., Cocker, D.R., Miller, J.W., Norbeck, J.M. 2004. Emission Rates of Particulate Matter and Elemental and Organic Carbon from In-Use Diesel Engines. Environmental Science and Technology. Vol. 38: 9 p.2544-2550.
20. Na, K., Sawant, A.A., Cocker, D.R. 2004. Trace Elements in Fine Particulate Matter within a Community in Western Riverside County, CA: Focus on Residential Sites and a Local High School. Atmospheric Environment. Vol. 38: 18 p.2867-2877.
21. Shah, S.D., Cocker, D.R. 2005. A Fast Scanning Mobility Particle Spectrometer for Monitoring Transient Particle Size Distributions. Aerosol Science and Technology. Vol. 39: p.519-526.
22. Song, C., Na, K., Cocker, D.R. 2005. Impact of the Hydrocarbon to NOx ratio (HC:NOx) on Secondary Organic Aerosol Formation. Environmental Science and Technology. Vol. 39: p.3143-3149.
23. Shah, S.D., Ogunyoku, T., Miller, J.W., Cocker, D.R. 2005. On-Road Emission Rates of PAH and n-Alkane Compounds From Heavy-Duty Diesel Vehicles. Environmental Science and Technology. Vol. 39: p.5276-5284.
24. Na, K., Cocker, D.R. 2005. Organic and Elemental Carbon Concentrations in Fine Particulate Matter in Residences, Schoolrooms, and Outdoor Air in Mira Loma, California. Atmospheric Environment. Vol. 39: p.3325-3333.
25. Carter, W.PL., Cocker, D.R., Fitz, D.R., Malkina, I., Bumiller, K., Sauer, C., Pisano, J., Bufalino, C., Song, C. 2005. A New Environmental Chamber for Evaluation of Gas-Phase Chemical Mechanisms and Secondary Aerosol Formation. Atmospheric Environment. Vol. 39: 40 p.7768-7788.
26. Shah, S.D., Johnson, K.C., Miller, J.W., Cocker, D.R. 2006. Emission Rates of Regulated Pollutants from On-Road Heavy-Duty Diesel Vehicles. Atmospheric Environment. Vol. 40: 1 p.147-153.
27. A, W.Li., Cocker, D.R., Collins, J.F., Norbeck, J.M. 2006. Assessment of Particulate Matter Emissions from a Sample of In-Use ULEV and SULEV Vehicles. SAE Technical Paper. Vol. No. 2006-01-1076.

28. Shah, S.D., Cocker, D.R., Johnson, K.C., Lee, J., Soriano, B., Miller, J.W. 2006. Emissions of Regulated Pollutants from In-Use Diesel Back-Up generators. Environmental Science and Technology. Vol. 40: 22 p.4199-4209.
29. Na, K., Song, C., Cocker, D.R. 2006. Formation of Secondary Organic Aerosol from the Reaction of Styrene with Ozone in the Presence and Absence of Ammonia and Water. Atmospheric Environment. Vol. 40: 10 p.1889-1900.
30. Song, C., Na, K., Warren, B., Malloy, Q., Cocker, D. 2007. Secondary Organic Aerosol Formation from m-Xylene in the Absence of NOx. Environmental Science and Technology. Vol. 41: 21 p.7409-7416.
31. Song, C., Na, K., Warren, B., Malloy, Q., Cocker, D. 2007. Impact of Propane on Secondary Organic Aerosol Formation from m-Xylene. Environmental Science and Technology. Vol. 41: 20 p.6990-6995.
32. Sawant, A., Shah, S., Zhu, X., Miller, J.W., Cocker, D. 2007. Real-world Emissions of Carbonyl Compounds From In-Use Heavy-Duty Diesel Trucks and Diesel Back-Up Generators (BUGs). Atmospheric Environment. Vol. 41: 21 p.4535-4547.
33. Na, K., Song, C., Switzer, C., Cocker, D. 2007. Effect of ammonia on secondary organic aerosol formation from a-pinene ozonolysis in dry and humid conditions. Environmental Science and Technology. Vol. 41: 17 p.6096-6102.
34. Fechter, L.D., Gearhart, C., Fulton, S., Campbell, J., Fisher, J., Na, K., Cocker, D., Nelson-Miller, A., Moon, P., Pouyatos, B. 2007. JP-8 Jet Fuel Can Promote Auditory Impairment Resulting From Subsequent Noise Exposure in Rats. Toxicological Sciences. Vol. 98: 2 p.510-525.
35. Fechter, L.D., Gearhart, C., Fulton, S., Campbell, J., Fisher, J., Na, K., Cocker, D., Nelson-Miller, A., Moon, P., Pouyatos, B. 2007. Promotion of Noise-Induced Cochlear Injury by Toluene and Ethylbenzene in the Rat. Toxicological Sciences. Vol. 98: 2 p.542-551.
36. Shah, S.D., Cocker, D.R., Johnson, K.C., Leef, J.M., Soriano, B.L., Miller, J.W. 2007. Reduction of Particulate Matter Emissions from Diesel Back-Up Generators Equipped with Four Different Exhaust Aftertreatment Devices. Environmental Science and Technology. Vol. 41: 14 p.5070-5076.
37. Sawant, A.A., Nigam, A., Miller, J.W., Johnson, K., Cocker, D.R. 2007. Emissions From In-use Diesel-Electric Switching Locomotives. Environmental Science and Technology. Vol. 41: 17 p.6074-6083.
38. Song, C., Na, K., Warren, B., Malloy, Q., Cocker, D. 2007. Secondary Organic Aerosol Formation from the Photooxidation of p- and o-Xylene. Environmental Science and Technology. Vol. 41: 21 p.7403-7409.
39. Durbin, T.D., Cocker, D.R., Sawant, A.A., Johnson, K.C., Miller, J.W., Holden, B.B., Helgeson, N.L., Jack, J.A. 2007. Regulated emissions from biodiesel fuels from on/off-road applications. Atmospheric Environment. Vol. 41: 17 p.6096-6102.
40. Durbin, T.D., Johnson, K., Cocker, D.R., Miller, J.W. 2007. Evaluation and Comparison of Portable Emissions Measurement Systems and Federal Reference Methods for Emissions from a Back-up Generator and a Diesel Truck Operated on a Chassis Dynamometer. Environmental Science and Technology. Vol. 41: 17 p.6199-6204.
41. Eurpe, M., Price, D., Silva, P., Malloy, Q.G., Li, Q., Warren, B.A., Cocker III, D.R. 2008. Secondary organic aerosol formation from reaction of tertiary amines with

nitrate radical. Atmospheric Chemistry and Physics Discussion. Vol. 8: p.12695-12720.
42. Agrawal, H., Malloy, Q., Welch, W., Miller, J., Cocker, D. 2008. In-use gaseous and particulate matter emissions from a modern ocean going container vessel. Atmospheric Environment. Vol. 42: 21 p.5504-5510.
43. Warren, B., Song, C., Cocker, D. 2008. Light intensity and light source influence on secondary organic aerosol formation for the m-xylene/NOx photooxidation system. Environmental Science and Technology. Vol. 42: 15 p.5461-5466.
44. Chang, M., Watson, J., Zhu, D., Nussbaum, N., Kuhns, H., Chow, J., Moosmüller, H., Mazzoleni, C., Miller, J.W., Cocker III, D.R., Durbin, T.D., Johnson, K.C. 2008. Field validation of the in-plume system with dilution sampling method. Journal of Air Waste Management Association (JAWMA). Vol. 57: 6p.
45. Johnson, K., Durbin, T., Cocker, D., Miller, J., Agama, R., Moynahan, M., Nayak, G. 2008. On-Road Evaluation of a PEMS for Measuring Gaseous In-Use Emissions from a Heavy-Duty Diesel Vehicle. Society of Automotive Engineers (SAE). Vol. Paper#2008-01-1300: 6p.
46. Na, K., Cocker, D. 2008. Fine organic particle, formaldehyde, acetaldehyde concentrations under and after the influence of fire activity in the atmosphere of Riverside, California. Environmental Research. Vol. 108: p.7-14.
47. Agrawal, H., Welch, W., Miller, J., Cocker, D. 2008. Emission Measurements from a Crude Oil Tanker at Sea. Environmental Science and Technology. Vol. 42: 19 p.7098-7103.
48. Sawant, A.A., Cocker III, D.R., Miller, J.W., Taliaferro, T., Diaz-Sanchez, D., Linn, W.S., Clark, K.W., Gong, H. 2008. Generation of Diesel Exhaust for Human Exposure. Journal of the Air and Waste Management Association. Vol. 58: 6 p.829-837.
49. Silva, P., Erupe, M., Price, D., Elias, J., Malloy, Q., Li, Q., Warren, B., Cocker, D. 2008. Trimethylamine as precursor to secondary organic aerosol formation via nitrate radical reaction in the atmosphere. Environmental Science and Technology. Vol. 42: 13 p.4689-4696.
50. Agrawal, H., Sawant, A., Jansen, K., Miller, J., Cocker, D. 2008. Characterization of chemical and particulate emissions from aircraft engines. Atmospheric Environment. Vol. 42: 18 p.4380-4392.
51. Warren, B.A., Malloy, Q.G., Yee, L.D., Cocker III, D.R. 2009. Secondary Organic Aerosol Formation from Cyclohexene Ozonolysis in the Presence of Water Vapor and Dissolved Salts. Atmospheric Environment. Vol. 43: 10 p.1789-1795.
52. Malloy, Q.GJ., Nakao, S., Li, Q., Austin, R., Stothers, C., Hagino, H., Cocker III, D.R. 2009. Real-Time Aerosol Density Determination Utilizing a Modified Scanning Mobility Particle Sizer " Aerosol Particle Mass Analyzer System. Aerosol Science and Technology. Vol. 43: 7 p.673-678.
53. Warren, B.A., Austin, R., Cocker III, D.R. 2009. Temperature dependence of secondary organic aerosol. Atmospheric Environment. Vol. 43: 22-23 p.3548-3555.
54. Agrawal, H.A., Eden, R., Zhang, X., Fine, P., Katzenstein, A., Miller, J.W., Ospital, J., Teffera, S., Cocker III, D.R. 2009. Primary Particulate Matter from Ocean going Engines in Southern California Air Basin. Environmental Science and Technology. Vol. 43: 14 p.5398-5402.

55. Johnson, K.C., Durbin, T.D., Jung, H., Chaudhary, A.A., Cocker III, D.R., Herner, J., Robertson, W., Huai, T., Ayala, A., Kittelson, D. 2009. Evaluation of the European PMP Methodologies during On-Road and Chassis Dynamometer Testing for DPF Equipped Heavy Duty Diesel Vehicles. Aerosol Science and Technology. Vol. 43: 10 p.962-969.
56. Johnson, K.C., Durbin, T.D., Cocker, D.R., Miller, J.W., Bishnu, D.K., Maldanado, H., Moynahan, N., Ensfield, C., Laroo, C. 2009. On-Road Comparison of a Portable Emission Measurement System with a Mobile Reference Laboratory for a Heavy-duty Diesel Vehicle. Atmospheric Environment. Vol. 43: 18 p.2877-2883.
57. Murphy, S.M., Agrawal, H.A., Sorooshian, A., Padro, L.T., Gates, H., Hersey, S., Welch, W.A., Jung, H., Miller, J.W., Cocker III, D.R., Nenes, A., Jonsson, H.H., Flagan, R.C., Seinfeld, J.H. 2009. Comprehensive Simultaneous Shipboard and Airborne Characterization of Exhaust from a Modern Container Ship at Sea. Environmental Science and Technology. Vol. 43: 13 p.4626-4640.
58. Malloy, Q., Qi, L., Warren, B., Cocker, D., Eurpe, M., Silva, P. 2009. Secondary organic aerosol from primary aliphatic amines with NO_3 radical. Atmospheric Chemistry and Physics. Vol. 9: 6 p.2051-2060.
59. Na, K., Cocker, D. 2009. Characterization and source identification of trace elements in PM2.5 from Mira Loma, southern California. Atmospheric Research. Vol. 93: 4 p.793-800.
60. Li, Q., Nakao, S., Tang, P., Cocker III, D.R. 2010. Temperature effect on physical and chemical properties of secondary organic aerosol from m-xylene photooxidation. Atmospheric Chemistry and Physics. Vol. 10: p.3847-3854.
61. Agrawal, H.A., Welch, W.A., Henningsen, S., Miller, J.W., Cocker III, D.R. 2010. Emissions from Main Propulsion Engine on Container Ship at Sea. Journal of Geophysical Research - Atmospheres. Vol. 115: p.D23205.
62. Erupe, M., Liberman-Martin, A., Silva, P.J., Malloy, Q.G., Yonis, N., Cocker III, D.R., Purvis-Roberts, K. 2010. Determination of methylamines and trimethylamine-N-oxide in particulate matter by non-suppressed ion chromatography. Journal of Chromatography A. Vol. 13: p.2070-2073.
63. Li, Q., Nakao, S., Malloy, Q.G., Warren, B.A., Cocker III, D.R. 2010. Can secondary organic aerosol formed in an atmospheric simulation chamber continuously age?. Atmospheric Environment. Vol. 44: p.2990-2996.
64. Hosseni, E., Li, Q., Cocker III, D.R., Weise, D., Miller, A., Shrivastava, M., Miller, J.W., Mahalingham, S., Princevac, M., Jung, H. 2010. Particle size distributions from laboratory-scale biomass fires using fast response instruments. Atmospheric Chemistry and Physics. Vol. 10: p.8065-8076.
65. Nakao, S., Shrivastava, M., Nguyen, A., Jung, H., Cocker III, D.R. 2011. Interpretation of Secondary Organic Aerosol Formation from Diesel Exhaust Photooxidation in an Environmental Chamber. Aerosol Science and Technology. Vol. 45: 8 p.964-972.
66. Johnson, K.C., Durbin, T.D., Jung, H., Cocker III, D.R., Bishnu, D.K., Giannelli, R. 2011. Quantifying In-Use PM Measurements for Heavy Duty Diesel Vehicles. Environmental Science and Technology. Vol. 45: 14 p.6073-6079.
67. Sato, K., Nakao, S., Clark, C., Li, Q., Cocker III, D.R. 2011. Secondary Organic Aerosol Formation From the Photooxidation of Isoprene, 1,3-Butadiene, and 2,3-

Dimethyl-1,3-butadiene Under High NOx Conditions. Atmospheric Chemistry and Physics. Vol. 11: 14 p.7301-7317.
68. Jayaram, V., Nigam, A., Welch, W.A., Miller, J.W., Cocker III, D.R. 2011. Real-Time Gaseous, PM and Ultrafine Particles from a Modern Marine Engine Operating on Biodiesel. Environmental Science and Technology. Vol. 45: 6 p.2286-2292.
69. Jayaram, V., Nigam, A., Welch, W.A., Miller, J.W., Cocker III, D.R. 2011. Effectiveness of Emission Control Technologies for Auxiliary Engines on Ocean-Going Vessels. Journal Air and Waste Management Association. Vol. 61: 1 p.14-21.
70. Nakao, S., Clark, C., Tang, P., Sato, K., Cocker III, D.R. 2011. Secondary organic aerosol formation from phenolic compounds in the absence of NOx. Atmospheric Chemistry and Physics. Vol. 11: p.10649-10660.
71. Khan, M., Russell, R., Welch, W.A., Cocker III, D.R., Ghosh, S. 2012. Impact of Algae Biofuel on In-Use Gaseous and Portable Emissions from a Marine Vessel. Energy and Fuels. Vol. 26: 10 p.6137-6143. 7p.
72. Khan, M., Johnson, K.C., Durbin, T.D., Jung, H., Cocker III, D.R., Bishnu, D.K., Giannelli, R. 2012. Characterization of PM-PEMS for in-use measurements conducted during validation testing for the PM-PEMS measurement allowance program. Atmospheric Environment. Vol. 55: p.311-318. 8p.
73. Khan, M., Giordano, M., Gutierrez, J., Welch, W.A., Asa-Awuku, A., Miller, J.W., Cocker III, D.R. 2012. Benefits of Two Mitigation Strategies for Container Vessels: Cleaner Engines and Cleaner Fuels. Environmental Science and Technology. Vol. 46: 9 p.5049-5056. 8p.
74. Tang, X., Cocker III, D.R., Asa-Awuku, A. 2012. Are sesquiterpenes a good source of secondary organic cloud condensation nuclei (CCN)? Revisiting beta-caryophyllene CCN. Atmospheric Chemistry and Physics. Vol. 12: 18 p.8377-8388. 12p.
75. Nakao, S., Liu, Y., Tang, P., Chen, C.L., Zhang, J., Cocker III, D.R. 2012. Chamber studies of SOA formation from aromatic hydrocarbons: observation of limited glyoxal uptake. Atmospheric Physics and Chemistry. Vol. 12: 9 p.3927-3937. 11p.
76. Zheng, Z., Durbin, T.D., Karavalakis, G., Johnson, K.C., Chaudhary, A.A., Cocker III, D.R., Herner, J., Robertson, W., Huai, T., Ayala, A., Kittelson, D., Jung, H. 2012. Nature of Sub-23-nm Particles Downstream of the European Particle Measurement Programme (PMP)-Compliant System: A Real-Time Data Perspective. Aerosol Science and Technology. Vol. 46: 8 p.886-896. 11p.
77. Khan, M., Agrawal, H.A., Ranganathan, S., Welch, W.A., Miller, J.W. 2012. Greenhouse Gas and Criteria Emission Benefits through Reduction of Vessel Speed at Sea. Environmental Science and Technology. Vol. 46: 22 p.12600-12607. 8p.
78. Li, Q., Nakao, S., Cocker III, D.R. 2012. Aging of Secondary Organic Aerosol from a-Pinene Ozonolysis: Roles of Hydroxyl and Nitrate Radicals. Journal of the Air and Waste Management Association. Vol. 62: 12 p.1359-1369. 11p.
79. Tang, X., Price, D., Praske, E., Lee, S., Shattuck, M.A., Purvis-Roberts, K., Silva, P.J., Asa-Awuku, A., Cocker III, D.R. 2013. NO3 radical, OH radical and O-3-initiated secondary aerosol formation from aliphatic amines. Atmospheric Environment. Vol. 72: p.105-112.
80. Yokelson, R., Burling, I., Gilman, J., Warneke, C., Stockwell, C., De Guow, J., Akagi, S., Urbanski, S., Veres, P., Roberts, J., Kuster, W., Reardon, J., Griffith, D., Johnson, T., Hosseni, E., Miller, J.W., Cocker III, D.R., Jung, H., Weise, D. 2013. Coupling

Field and Laboratory Measurements to Estimate the Emission Factors of Identified and Unidentified Trace Gases for Prescribed Fires. Atmospheric Chemistry and Physics. Vol. 13: 1 p.89-116. 27p.

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82. Nakao, S., Tang, P., Tang, X., Clark, C., Li, Q., Heo, E., Asa-Awuku, A., Cocker III, D.R. 2013. Density and elemental ratios of secondary organic aerosol: application of a density prediction method. Atmospheric Environment. Vol. 68: p.273-277. 5p.
83. Hosseni, E., Urbanski, S., Dixit, P., Li, Q., Burling, I., Yokelson, R., Johnson, T.J., Shrivastava, M., Jung, H., Weise, D., Miller, J.W., Cocker III, D.R. 2013. Laboratory characterization of PM emissions from combustion of wildland biomass fuels. Journal of Geophysical Research. Vol. 118: p.1-16.
84. Clark, C., Nakao, S., Asa-Awuku, A., Sato, K., Cocker III, D.R. 2013. Real-time study of particle-phase products from α-pinene ozonolysis and isoprene photo-oxidation using particle into liquid sampling directly coupled to a time of flight mass spectrometer (PILS-ToF). Aerosol Science and Technology. Vol. 47: 12 p.1374-1382.
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86. Gysel, N.R., Russell, R.L., Welch, W.A., Cocker, D., Ghosh, S. 2014. Impact of Sugarcane Renewable Fuel on In-Use Gaseous and Particulate Matter Emissions from a Marine Vessel. Energy & Fuels. Vol. 28: 6 p.4177-4182.
87. Tang, X., Price, D., Praske, E., Vu, D., Purvis-Roberts, K., Silva, P.J., Cocker III, D.R., Asa-Awuku, A. 2014. CCN activity of Two Aliphatic Amine Secondary Aerosol. Atmospheric Chemistry and Physics . Vol. 14: 12 p.5959-5967.
88. Price, D., Clark, C., Tang, X., Cocker III, D.R., Purvis-Roberts, K., Silva, P.J. 2014. Proposed Chemical Mechanisms Leading to Secondary Organic Aerosol in the Reactions of Aliphatic Amines with Hydroxyl and Nitrate Radicals. Atmospheric Environment. Vol. 96: p.135-144.
89. Xu, J., Griffin, R., Liu, Y., Nakao, S., Cocker III, D.R. 2015. Simulated Impact of NOx on SOA formation from oxidation of toluene and m-xylene. Atmospheric Environment. Vol. 101: p.217-225.
90. Li, L., Tang, P., Cocker, D. 2015. Instantaneous nitric oxide effect on secondary organic aerosol formation from m-xylene photooxidation. Atmospheric Environment. Vol. 119: p.144-155.
91. Clark, C., Kacarab, M., Nakao, S., Asa-Awuku, A., Sato, K., Cocker III, D.R. 2016. Temperature Effects on Secondary Organic Aerosol (SOA) from the Dark Ozonolysis and Photo-oxidation of Isoprene. Environmental Science and Technology. Vol. 50: 11 p.5564-5571. 8p.
92. Li, L., Tang, P., Nakao, S., Cocker, D. 2016. Impact of Molecular Structure on Secondary Organic Aerosol Formation from Aromatic Photooxidation Under Low NOx Conditions. Atmospheric Chemistry and Physics. Vol. 16: p.10793-10808. 16p.

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94. Karavalakis, G., Hajbabaei, M., Yu, J., Yang, J., Johnson, K.C., Cocker, D., Durbin, T.D. 2016. Regulated, greenhouse gas, and particulate emissions from lean-burn and stoichiometric natural gas heavy-duty diesel vehicles on different fuel compositions. Fuel. Vol. 175: p.146-156.
95. Chen, C., Kacarab, M., Tang, P., Cocker, D. 2016. SOA formation from Naphthalene, 1-MethylNapthalene, and 2-MethylNaphthalene Photooxidation. Atmospheric Environment. Vol. 131: p.424-433.
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Ph.D. Students Mentored

(*-Ph.D. completed, total of 39 completed, 8 current):

[redacted] Shah*, [redacted] Sawant*, [redacted] Song*, [redacted] Nigam*, [redacted] Warren*, [redacted] Malloy*, [redacted] Chaudhary*, [redacted] Agrawal*, [redacted] Li*, [redacted] Jayaram*, [redacted] Johnson*, [redacted] Nakao*, [redacted] Hosseni*, [redacted] Clark*, [redacted] Tang*, [redacted] Tang*, [redacted] Khan*, [redacted] Hajbajai*, [redacted] Dixit*, [redacted] Price*, [redacted] Cao*, [redacted] Gysel*, [redacted] Luo*, [redacted] Chen*, [redacted] Li*, [redacted] Kacarab*, [redacted] Li*, [redacted] Van Rooy*, [redacted] Peng*, [redacted] Jiang*, [redacted] Yang*, [redacted] Feenstra*, [redacted] Peng*, [redacted] Moretti*, [redacted] Zhu*, [redacted] Li*, [redacted] Le*, [redacted] Ghadimi*, [redacted] Eckel*, [redacted] Drover, [redacted] Gonzalez, [redacted] Li, [redacted] Gracia, [redacted] Zhu, [redacted] Shahid, [redacted] Dingilian, [redacted] Williams

M.S. Students Mentored

(*-M.S. completed, total of 4):

[redacted] Sawant*, [redacted] Zhang*, [redacted] Gu*, [redacted] Simkins*

Funding

Caltrans	Greenhouse gas emissions from roadway plastics	04/01/2024-03/31/2027	$350,000	PI
LA Cleantech Incubator	Impacts of natural gas stove replacement with induction stoves	07/01/2023-06/30/2024	$30,271	PI
Alliance	Marine engine testing	06/01/2023-12/31/2023	$72,125	PI
Anglo Belgian	Marine source testing	03/01/2023-12/31/2023	$24,991	PI
PHOTIO	Evaluation of NOx removal by photocatalysis	09/01/2022-6/30/24	$15,000	PI
3M Corporation	Maximum incremental Reactivity for Novel Compound	03/11/2021-12/31/2023	$50,000	PI
Department of Education	GAANN Fellowships in Chemical and Environmental Engineering	10/01/2019 - 09/30/2022	$1,195,986.00	Co-PI
National Science Foundation	CAREER: Mechanistic investigation of organic cloud condensation nuclei evolution	07/01/2019 - 06/30/2024	$20,000.00	Sub
US Environmental Protection Agency	PanCeria: Catalytic NO and CO Emission Control Unit for Small Off-road Engines	05/01/2019 - 10/30/2023	$74,926.00	PI
California Air Resources Board	Environmental Chamber Experiments to Improve Secondary Organic Aerosol Model Prediction	04/01/2019 - 03/31/2023	$450,000.00	PI
Naval Surface Warfare Center	Research Support for Development of Chemical Solvent Analysis for Hydrocarbon Contamination	10/02/2018 - 09/29/2019	$191,371.00	PI
US Environmental Protection Agency	PanCeria NOx Reducing Device - Selective Catalytic Reduction System for Emission Control of Small Off-Road Engines	02/01/2018 - 01/31/2019	$15,000.00	PI
Coordinating Research Council	The Influence of NOx on Ozone and SOA Formation	01/02/2018 - 12/31/2022	$370,000.00	PI
South Coast Air Quality Management District	Secondary Organic Aerosol (SOA) Forming Potential from Heavy-Duty Diesel Vehicles and Heavy-Duty Natural Gas Vehicles	12/06/2017 - 12/31/2021	$85,000.00	Co-PI
National Science Foundation	Collaborative Research: ICARUS - Index of Chamber Atmospheric Research in the United States	09/01/2017 - 08/30/2022	$184,588.00	PI

Naval Surface Warfare Center	Research Support for Development of Chemical Solvent Analysis for Hydrocarbon Contamination	03/16/2017 - 09/29/2018	$222,960.00	PI
South Coast Air Quality Management District	Ozone and SOA Formation from Gasoline and Diesel Compounds	10/02/2015 - 01/02/2017	$75,000.00	PI
National Science Foundation	Collaborative Research: Aerosol Formation from Agricultural Volatile Organic Compounds	07/01/2015 - 06/30/2019	$452,393.00	PI
Honda	On-road Real-time Sensing for Select Atmospheric Cations and Gaseous Species	07/01/2015 - 01/31/2017	$59,462.00	PI
NSF via UC San Diego	RAPID: Complementary Organic Aerosol Measurements of Marine Aerosol on the R/V Knorr During the Western Atlantic Climate Study	12/01/2014 - 11/30/2015	$4,773.00	PI
US Environmental Protection Agency	Technology for Reducing BBQ Particulate Matter Emissions	09/01/2014 - 08/31/2015	$15,000.00	PI
US Environmental Protection Agency	NOx out: Selective Catalytic Reduction System	09/01/2014 - 08/31/2015	$15,000.00	PI
US Department of Agriculture Forest Service	Interception of Smoke by a Forest Canopy	06/02/2014 - 01/31/2016	$32,500.00	PI
National Science Foundation	Collaborative Research: Aerosol Formation From Agricultural Volatile Organic Compounds	01/01/2014 - 12/31/2016	$472,617.00	PI
California Air Resources Board	Air Quality Impacts of Low Vapor Pressure - Volatile Organic Compounds	09/03/2013 - 09/02/2017	$405,338.00	PI
US Environmental Protection Agency	Test Protocol for Evaluating Smog Eating Roof Tiles	08/15/2013 - 08/14/2014	$14,995.00	PI
The Consumer Specialty Products Association	Review of VOC Emissions Inventory for Consumer Products and Architectural Coatings for Potential Alternative Fate Corrections	08/15/2013 - 08/14/2014	$34,611.00	PI
UCLA	Subcontract on study of diesel emission particulate chemical composition and biological activity	06/01/2013 - 08/31/2013	$13,000.00	Co-PI

South Coast Air Quality Management District	The Development of Quanititative Cellular Assays for use in Understanding the Chemical Basis of Air Pollutant Toxicity	06/08/2012 - 07/31/2016	$60,609.00	Co-PI
South Coast Air Quality Management District	Characterization of the Physical, Chemical, and Biological Properties of PM, VOCs, and Carbonyl Groups From Underfired Charbroilers.	01/06/2012 - 05/31/2015	$150,000.00	Co-PI
National Science Foundation	REU Supplement: Reactions and Fate of Amines in the Atmosphere Emitted From Animal Feeding Operations	09/01/2010 - 08/31/2011	$15,000.00	PI
CONCAWE	Investigation of the Origin of OC From Large Marine Engines	10/01/2009 - 09/30/2010	$60,000.00	PI
National Science Foundation	Collaborative Research: Impact of Changing VOC to NOx Ratios on Secondary Organic Aerosol Formation	09/15/2009 - 08/31/2013	$356,672.00	PI
National Science Foundation	Reactions and Fate of Amines in the Atmosphere Emitted From Animal Feeding Operations	08/01/2009 - 07/31/2013	$196,045.00	PI
National Institute of Environmental Health Science (NIEHS)	Supplement: Wearable Nanosensors Array Real-Time Monitoring of Diesel and Gasoline Exhaust Exposure	06/01/2009 - 05/31/2010	$84,700.00	Co-PI
California Air Resources Board	PM PEMS Validation Testing with a 1065 Compliant PM (Mobile) Laboratory for the PM-PEMS Measurement Allowance Determination for the HDIUT Program	05/20/2009 - 06/30/2010	$573,113.00	Co-PI
Fossil Energy Research Corporation	Control Strategies and Technologies for Particulate Matter Under 2.5 Microns (PM2.5) and Ultrafine Particulate Emsisions from Natural Gas-Fired Gas Turbines	05/12/2009 - 12/31/2013	$163,017.00	Co-PI
SK Energy Co.	Testing of SK DePF	09/01/2008 - 12/31/2008	$14,000.00	PI
National Science Foundation	REU for CAREER: Evaluating Secondary Organic Aerosol Formation	07/01/2008 - 06/30/2009	$15,000.00	PI

National Institute of Environmental Health Sciences (NIEHS)	Supplement: Wearable Nanosensors Array Real-Time Monitoring of Diesel and Gasoline Exhaust Exposure	06/01/2008 - 05/31/2009	$99,714.00	Co-PI
National Institute of Environmental Health Sciences	Supplement: Wearable Nanosensors Array Real-Time Monitoring of Diesel and Gasoline Exhaust Exposure	06/01/2008 - 05/31/2009	$110,625.00	Co-PI
Strategic Environmental Research Defense Program	New Tools for Estimating and Managing Local/ Regional Air Quality Impacts of Prescribed Burns	03/01/2008 - 02/28/2014	$1,600,000.00	Co-PI
California Air Resources Board	Comparison of PM-PEMS for the HDUIT Program with a 1065 Compliant PM (Mobile) Laboratory	12/18/2007 - 12/31/2008	$284,667.00	Co-PI
National Institute of Environmental Health Sciences (NIEHS)	Supplement: Wearable Nanosensors Array Real-Time Monitoring of Diesel and Gasoline Exhaust Exposure	08/15/2007 - 05/31/2008	$4,500.00	Co-PI
National Science Foundation	REU supplement to CAREER grant	08/01/2007 - 07/01/2008	$12,500.00	PI
National Institute of Health	Wearable Nanosensor Array for Real-Time Monitoring of Diesel and Gasoline Exhaust	08/01/2007 - 05/01/2011	$2,217,587.00	Co-PI
South Coast Air Quality Management District	Photochemical Assessment Monitoring Stations (PAMS)	06/25/2007 - 11/30/2007	$19,000.00	PI
California Air Resources Board	Development of Updated ARB Solvent Cleaning Inventory	05/01/2007 - 11/01/2008	$249,343.00	PI
National Paint and Coatings Association	Paint and Architectural Coatings Case Study	10/01/2006 - 10/01/2007	$335,000.00	Co-PI
U.S. Environmental Protection Agency	Air Quality and Emissions Measurement at the University of California, Riverside	08/01/2006 - 06/30/2008	$37,200.00	Co-PI
US. Environmental Protection Agency	Air Quality and Emissions Measurement at the University of California, Riverside	08/01/2006 - 09/01/2007	$110,000.00	Co-PI
National Science Foundation	REU experience (CAREER award supplement)	07/01/2006 - 06/01/2007	$12,500.00	PI
California Air Resources Board	Evaluation of the New European Methodology for Determination of Particle Number Emissions and its Potential in California for In-use Screening	06/01/2006 - 08/01/2008	$259,286.00	Co-PI
California Air Resources Board	Measurement Allowance Project	06/01/2006 - 09/01/2007	$84,682.00	Co-PI

U.S. Environmental Protection Agency	Air Quality and Emissions Measurement at the University of California, Riverside	06/01/2006 - 09/01/2007	$70,000.00	PI
California Air Resources Board	Approach for Air Resources Board Particulate Matter Speciation Profile Development for On- and Off-Road Sources	04/01/2006 - 12/01/2007	$699,911.00	Co-PI
City of Los Angeles	Measurement of Regulated and Toxic Emissions From City of Los Angeles Vehicles	10/01/2005 - 10/01/2005	$450,000.00	PI
California Air Resources Board	The Development of Exhaust Speciation Profiles for Commercial Jet Engines 270,000 (90,000 sub to UCR)	08/01/2005 - 06/01/2006		Co-PI
Environmental Protection Agency	EPA Star Grant - PhD Bethany Warren - "Influence of Relative Humidity and Temperature on Secondary Organic Aerosol Formation)	07/11/2005 - 07/12/2008	$43,013.00	PI
Environmental Protection Agency	Utilization of a Next-Generation Environmental Chamber Facility for Chemical Mechanism and VOC Reactivity Evaluation	07/01/2005 - 06/01/2006	$175,000.00	Co-PI
UC Riverside Academic Senate	Faculty Fellowship	07/01/2005 - 06/01/2006	$2,200.00	PI
National Science Foundation	Research experience undergraduate (REU supplement to NSF CAREER award)	07/01/2005 - 06/01/2006	$12,500.00	PI
National Science Foundation (CAREER)	Investigations of Secondary Organic Aerosol Processes	07/01/2005 - 06/01/2010	$400,001.00	PI
California Air Resources Board	Development of In-field Diesel PM Compliance Method for Stationary and Portable CI Engines	06/01/2005 - 07/01/2008	$300,000.00	Co-PI
Veteran Affairs, Loma Linda	Preventing Jet Fuel and Noise Induced Hearing Loss	01/01/2005 - 12/01/2007	$42,300.00	PI
U.S. Environmental Protection Agency	Air Quality and Emissions Measurement at the University of California, Riverside	01/01/2005 - 12/31/2005	$127,100.00	Co-PI
Detroit Diesel Corporation	Tractor In-Cabin Air Quality Study	07/01/2004 - 12/01/2004	$110,175.00	PI
California Air Resources Board	Evaluation of the Heavy-Duty Diesel Engine Not-To-Exceed Regulation	05/01/2004 - 05/01/2006	$400,000.00	Co-PI

SCAQMD	Reactivity and Availability Studies of VOC Species Found in Architectural Coatings and Mobile Sources	08/01/2003 - 07/01/2004	$200,000.00	Co-PI
SERDP(subcontracted from Desert Research Institute)	Emissions from Department of Defense Off-road Diesel Sources $2.488M overall; 1.0M to UCR	07/01/2003 - 04/01/2007	$2,400,000.00	Co-PI
California Environmental Protection Agency and California Air Resources Board	Literature Searches for Internal Combustion Engine Air Toxic Emissions and Particulate Matter Mass Measurement and Physical Characterization	06/01/2003 - 06/01/2004	$64,519.00	Co-PI
Subcontract to Los Amigos Research and Education Institute,Funded by Health Effects Institute	Scanning Electrical Mobility Spectrometer as follow on to "Generation and Characterization of Diesel Exhaust for Human Exposures: Pilot Study"	03/01/2003 - 08/01/2003	$50,000.00	PI
National Science Foundation	Ammonia: Organic Chemistry and Secondary Organic Aerosol Yield in the Troposphere	03/01/2003 - 02/01/2005	$174,144.00	PI
California Energy Commission(subcontract from UCR)	Measurement of Carbonyls and PM from uncontrolled and controlled back-up generators	12/01/2002 - 11/01/2003	$35,000.00	PI
Health Effects Institute(subcontract from UCLA)	Exacerbation of Allergenic Inflammation in the Lower Respiratory Tract by diesel exhaust particles	01/01/2002 - 09/01/2006	$282,118.00	Co-PI
Riverside County	Mira Loma Indoor/Outdoor Air Quality Study	09/01/2001 - 08/01/2002	$325,000.00	PI
South Coast Air Quality Management District	Mira Loma Indoor/Outdoor Air Quality Study	09/01/2001 - 08/01/2002	$50,000.00	PI

Teaching *

(Courses starting with: 0 = Lower Division, 1 = Upper Division, 2 = Graduate)

Course	Name	Number of times	Approx # students
ENVE 133	Fundamentals of Air Pollution Engineering	19	45
CEE 233	Advanced Air Pollution Control Engineering	9	10
HNPG 151	Individual Projects in Research or Creative Activity	12	15
HNPG 015/16/17	Freshman Honors Ignition Seminar	8	15
ENVE 160A/CHE 160A	Senior Chemical and Environmental Engineering Lab – Fluids Mechanics/Mass Tranfer	1	80
ENVE 160B	Senior Environmental Engineering Lab – Air Quality	12	25
CHE 160B	Senior Chemical Engineering Lab – Transport/Kinetics	1	50
CEE 125	Analytical Methods for Chemical and Environmental Engineers	4	40
ENVE 120	Unit Operations and Processes in Environmental Engineering	3	15
CEE 202	Transport Phenomena	8	15
ENVE 135	Fate and Transport of Environmental Contaminants	1	10

*Individual study, graduate seminar, special topics, research for units, etc. not listed.