

Georgios Karavalakis

EDUCATION

Doctor of Philosophy, Chemical Engineering, National Technical University of Athens, Athens, Greece 2002-2009

Thesis: Optimization of biodiesel production and emissions performance from biodiesel fuelled vehicles (Thesis Supervisor: Professor Stamoulis Stournas)

Master of Science (MSc), Environmental Engineering, University of Portsmouth, Portsmouth, Hampshire 2000-2001

Bachelor of Engineering (BEng Hons), Engineering, University of Portsmouth, Portsmouth, Hampshire 1995-2000

EMPLOYMENT

2015-present

Associate Adjunct Professor, Bourns College of Engineering, Chemical and Environmental Engineering Department, University of California, Riverside

2013-2015

Assistant Adjunct Professor, Bourns College of Engineering, Chemical and Environmental Engineering Department, University of California, Riverside

2014-present

Associate Research Engineer (Research Faculty), Bourns College of Engineering, Center for Environmental Research and Technology (CE-CERT), University of California, Riverside, Riverside, California

2010-2014

Assistant Research Engineer (Research Faculty), Bourns College of Engineering, Center for Environmental Research and Technology (CE-CERT), University of California, Riverside, Riverside, California

2007-2010

Consulting Engineer, Elin Biofuels S.A., Volos, Greece

2002-2009

Research Fellow, School of Chemical Engineering, Laboratory of Fuels Technology and Lubricants, National Technical University of Athens, Athens, Greece

AWARDS

‘Thomaidio Award for the Progress of Science and Arts’ for best paper award in 2005.

‘Thomaidio Award for the Progress of Science and Arts’ for best paper award in 2009.

TEACHING EXPERIENCE

Teaching short courses related to ‘Introduction in Internal Combustion Engines’ and Introduction to Air Pollution’ to international exchange students at UC Riverside.

Co-supervising four graduate students at UC Riverside.

- Responsible for their laboratory/instruments training
- Responsible for their day-to-day research activities

Teaching Assistant, National Technical University of Athens, 2004-2009.

Taught laboratory classes on fuels and lubricants science and technology, and internal combustion engines, graded papers

- Led groups of 25-30 undergraduate students each semester to conduct a group dissertation

SERVICE TO THE PROFESSION

Member of the Editorial Board for the Scientific World Journal – Energy

Reviewer for the Journals: Fuel, Fuel Processing Technology, Atmospheric Environment, Science of the Total Environment, Energy, Applied Energy, Environmental Science and Technology, Energy and Fuels, Biomass and Bioenergy, Bioresource Technology, Algal Research, Automobile Engineering, Atmospheric Research, Atmospheric Chemistry and Physics

Technical Sessions Organized:

- Organizer ‘Technical Expert Panel Discussion – Secondary Organic Aerosol Formation from Mobile Sources: The Effects of Engine Technology and Type, Fuel Formulation, and Aftertreatment’ April 2017, Detroit, Michigan, USA

- Organizer 'Alternative and Advanced Fuels session' 2017 SAE World Congress Experience, April 2017, Detroit, Michigan, USA
- Organizer and Session Chair 'Alternative and Advanced Fuels session' 2016 International Powertrains, Fuels and Lubricants Meeting, October 24-26, Baltimore, Maryland, USA
- Organizer 'Alternative and Advanced Fuels session' 2016 SAE World Congress and Exhibition, April 2016, Detroit, Michigan, USA
- Organizer and Session Chair 'Alternative and Advanced Fuels session' 2015 SAE World Congress and Exhibition, April 2015, Detroit, Michigan, USA
- Organizer 'Alternative and Advanced Fuels session' 2014 SAE Powertrains, Fuels and Lubricants Meeting, Birmingham, October 20-23, 2014, United Kingdom
- Organizer and Session Chair 'Alternative and Advanced Fuels session' 2014 SAE World Congress and Exhibition, April 2014, Detroit, Michigan, USA
- Session Chair 'Combustion Particles/Aerosols' 2013 American Association for Aerosol Research, 32nd Annual Conference, September 30, Portland, Oregon, USA
- Organizer and Session Chair 'Alternative and Advanced Fuels session' 2013 SAE World Congress and Exhibition, April 2013, Detroit, Michigan, USA
- Organizer 'Alternative and Advanced Fuels session' 2012 SAE Powertrains, Fuels and Lubricants Meeting, September 18-20, 2012, Malmo, Sweden
- Organizer 'Alternative and Advanced Fuels session' 2012 SAE World Congress and Exhibition, April 2012, Detroit, Michigan, USA
- Organizer 'Alternative and Advanced Fuels session' 2011 SAE World Congress and Exhibition, April 2011, Detroit, Michigan, USA
- Organizer and Session Chair 'Alternative and Advanced Fuels session', and 'Cold Start and Transients session' 2010 SAE Powertrains, Fuels and Lubricants Meeting, October 2010, San Diego, California, USA
- Organizer, 'Alternative and Advanced Fuels session', 2010 SAE International Powertrains, Fuels and Lubricants Meeting, May 2010, Rio de Janeiro, Brazil
- Organizer, 'Deposits Formation & Fuels Quality Issues session', 'Effect of Fuel Changes on Emissions session', 'Novel and Alternative Fuels - Production, Use and Global Impact sessions', 'Operability and Durability Considerations session' and 'Combustion /

Injection session', 2009 SAE Powertrains, Fuels and Lubricants Meeting, November 2009, San Antonio, Texas, USA

- Organizer and Session Chair, 'Alternative and Advanced Fuels session', 'Compression Ignition Performance with Alternative Fuels session', 2009 SAE International Powertrains, Fuels and Lubricants Meeting, June 2009, Florence, Italy

Committees:

SAE Exhaust Aftertreatment and Emissions Committee

SAE Combustion and Fuels Committee

MEMBERSHIPS

Society of Automotive Engineers (SAE), Member

American Association of Aerosol Research (AAAR), Member

INVITED TALKS

1. US Environmental Protection Agency, Ann Arbor, MI, April 2016
2. Health Effects Institute (HEI), Workshop on Effects of Fuel Composition on PM, Chicago, IL, December 2016
3. Corning Incorporated, Corning, NY, July 2017

JOURNAL PUBLICATIONS (h-index = 27, ~2188 citations)

(Peer Reviewed)

- J1. Mattheou L., Zannikos F., Schinas P., **Karavalakis G.**, Karonis D., Stournas S., 2006. Impact of using adulterated automotive diesel on the exhaust emissions of a stationary diesel engine. Global NEST Journal, 8(3), 291-296.
- J2. **Karavalakis G.**, Tzirakis E., Zannikos F., Stournas S., Bakeas E., Arapaki N., Spanos A., 2007. Diesel/soy methyl ester blends emissions profile from a passenger vehicle operated on the European and the Athens driving cycles. SAE Transactions, Journal of Fuels and Lubricants 2007-01-4043, 938-946. *(Corresponding Author)*
- J3. **Karavalakis G.**, Tzirakis E, Mattheou L, Stournas S, Zannikos F, Karonis D., 2008. The impact of using biodiesel/marine gas oil blends on exhaust emissions from a stationary diesel engine.

J Environ Sci Health A Tox Hazard Subst Environ Eng., 43(14), 1663-1672. (*Corresponding Author*)

- J4. **Karavalakis, G.**, Stournas, S., Bakeas, E., 2009. Effects of diesel/biodiesel blends on regulated and unregulated pollutants from a passenger vehicle operated over the European and the Athens driving cycles. Atmospheric Environment 43, 1745-1752.
- J5. **Karavalakis, G.**, Stournas, S., Bakeas, E., 2009. Light vehicle regulated and unregulated emissions from different biodiesels. Science of the Total Environment 407, 3338-3346.
- J6. **Karavalakis G.**, Alvanou F., Stournas S., Bakeas E., 2009. Regulated and unregulated emissions of a light duty vehicle operated on diesel/palm-based methyl ester blends over the NEDC and a non-legislated driving cycle. Fuel 88, 1078-1085.
- J7. Fontaras G., **Karavalakis G.**, Kousoulidou M., Tzamkiozis T., Ntziachristos L., Bakeas E., Stournas S., Samaras Z., 2009. Effects of biodiesel on passenger car fuel consumption, regulated and non-regulated pollutant emissions over legislated and real world driving cycles. Fuel 88, 1608-1617.
- J8. P. Schinas, **G. Karavalakis**, C. Davaris, G. Anastopoulos, D. Karonis, F. Zannikos, S. Stournas, E. Lois, 2009. Pumpkin (*Cucurbita pepo* L.) seed oil as an alternative feedstock for the production of biodiesel in Greece. Biomass and Bioenergy 33 (1), 44-49. (*Corresponding Author*)
- J9. **George Karavalakis**, Stamoulis Stournas, Dimitrios Karonis, 2009. Evaluation of the oxidation stability of diesel/biodiesel blends using the modified Rancimat method. SAE International Journal of Fuels and Lubricants 2(1), 839-849. (*Corresponding Author*)
- J10. **George Karavalakis**, Stamoulis Stournas, Dimitrios Ampatzoglou, Evangelos Bakeas, Apostolos Spanos, 2009. Regulated and Unregulated Emissions of a Euro 4 SUV Operated with Diesel and Soy-based Biodiesel Blends. SAE International Journal of Fuels and Lubricants 2(2), 115-131. (*Corresponding Author*)
- J11. **G. Karavalakis**, E. Tzirakis, S. Stournas, F. Zannikos, D. Karonis, 2010, Biodiesel emissions from a diesel vehicle operated on a non-legislative driving cycle. Energy Sources, Part A: Recovery, Utilization and Environmental Effects 32(4), 376-383. (*Corresponding Author*)
- J12. Georgios Fontaras, Marina Kousoulidou, **Georgios Karavalakis**, Theodoros Tzamkiozis, Panayotis Pistikopoulos, Leonidas Ntziachristos, Evangelos Bakeas, Stamoulis Stournas, and Zissis Samaras, 2010. Effects of low concentration biodiesel blends application on modern

- passenger cars. Part 1: Feedstock impact on regulated pollutants, fuel consumption and particle emissions. Environmental Pollution 158(5), 1451-1460.
- J13. Georgios Fontaras, **Georgios Karavalakis**, Marina Kousoulidou, Leonidas Ntziachristos, Evangelos Bakeas, Stamoulis Stournas, Zissis Samaras, 2010. Effects of low concentration biodiesel blends application on modern passenger cars. Part 2: Impact on carbonyl compound emissions. Environmental Pollution 158(7), 2496-2503.
- J14. **Georgios Karavalakis**, Georgios Fontaras, Dimitrios Ampatzoglou, Marina Kousoulidou, Stamoulis Stournas, Zissis Samaras, Evangelos Bakeas, 2010. Effects of low concentration biodiesel blends application on modern passenger cars. Part 3: Impact on PAH, nitro-PAH, and oxy-PAH emissions. Environmental Pollution 158(5), 1584-1594.
- J15. **George Karavalakis**, Stamoulis Stournas, Dimitrios Karonis, 2010. Evaluation of the oxidation stability of diesel/biodiesel blends. Fuel 89(9), 2483-2489. (*Corresponding Author*)
- J16. **Karavalakis G**, Stournas S, 2010. Impact of antioxidant additives on the oxidation stability of diesel/biodiesel blends. Energy and Fuels 24(6), 3682-3686. (*Corresponding Author*)
- J17. **Karavalakis G.**, Bakeas E., Stournas S., 2010. Influence of oxidized biodiesel blends on regulated and unregulated emissions from a diesel passenger car. Environmental Science and Technology 44(13), 5306-5312. (*Corresponding Author*)
- J18. **Georgios Karavalakis**, Georgios Anastopoulos, Dimitrios Karonis, Stamos Stournas, 2010. Biodiesel production using tetramethyl- and benzyltrimethyl ammonium hydroxides as strong base catalysts. Fuel Processing Technology 91(11), 1585-1590. (*Corresponding Author*)
- J19. **Karavalakis G.**, Deves G., Fontaras G., Stournas S., Samaras Z., Bakeas E., 2010. The impact of soy-based biodiesel on PAH, nitro-PAH and oxy-PAH emissions from a passenger car operated over regulated and nonregulated driving cycles. Fuel 89(12), 3876-3883.
- J20. **Karavalakis G.**, Anastopoulos G., Stournas S., 2010. Methyl ester production from sunflower and waste cooking oils using alkali-doped metal oxide catalysts. Ind Eng Chem Res 49(23), 12168-12172. (*Corresponding Author*)
- J21. **Karavalakis G.**, Hilari D., Givalou L., Karonis D., Stournas S., 2011. Storage stability and ageing effect of biodiesel blends treated with different antioxidants. Energy 36(1), 369-374. (*Corresponding Author*)

- J22. Bakeas E., **Karavalakis G.**, Stournas S., 2011. Biodiesel emissions profile in modern diesel vehicles. Part 1: Effect of biodiesel origin on the criteria emissions. Science of the Total Environment 409(9), 1670-1676. (*Corresponding Author*)
- J23. **Karavalakis G.**, Boutsika V., Stournas S., Bakeas E., 2011. Biodiesel emissions profile in modern diesel vehicles. Part 2: Effect of biodiesel origin on carbonyl, PAH, nitro-PAH and oxy-PAH emissions. Science of the Total Environment 409(4), 738-747.
- J24. **G. Karavalakis**, G. Anastopoulos, S. Stournas., 2011. Tetramethylguanidine as an efficient catalyst for transesterification of waste frying oils. Applied Energy 88(11), 3645-3650. (*Corresponding Author*)
- J25. Bakeas E., **Karavalakis G.**, Fontaras G., Stournas S., 2011. An experimental study on the impact of biodiesel origin on the regulated and PAH emissions from a Euro 4 light-duty vehicle. Fuel 90(11), 3200-3208. (*Corresponding Author*)
- J26. **Karavalakis G.**, Bakeas E, Fontaras G., Stournas S., 2011. Effect of biodiesel origin on regulated and particle-bound PAH (polycyclic aromatic hydrocarbon) emissions from a Euro 4 passenger car. Energy 36, 5328-5337. (*Corresponding Author*)
- J27. Fontaras G., Kousoulidou M., **Karavalakis G.**, Bakeas E., Samaras Z., 2011. Impact of straight vegetable oil-diesel blends application on vehicle regulated and non-regulated over legislated and real world driving cycles. Biomass and Bioenergy 35(7), 3188-3198.
- J28. **Karavalakis G.**, Durbin T.D., Shrivastava M., Zheng Z., Villela M., Jung H., 2012. Impacts of ethanol fuel level on emissions of regulated and unregulated pollutants from a fleet of gasoline light-duty vehicles. Fuel 93, 549-558. (*Corresponding Author*)
- J29. **Karavalakis G.**, Durbin T.D., Villela M., Miller W.J., 2012. Air pollutant emissions of light-duty vehicles operated on various natural gas compositions. Journal of Natural Gas Science and Engineering 4, 8-16. (*Corresponding Author*)
- J30. Zhongqing Zheng, Thomas D. Durbin, **Georgios Karavalakis**, Kent C. Johnson, Ajay Chaudhary, David R. Cocker III, Jorn D. Herner, William H. Robertson, Tao Huai, Alberto Ayala, David B. Kittelson, and Heejung S. Jung, 2012. Nature of sub 23 nm particles downstream European PMP systems – A real time data perspective. Aerosol Science and Technology 46, 886-896.

- J31. John T. Pisano, Lawrence J. Muzio, Thomas D. Durbin, **Georgios Karavalakis**, Ron Gaston, Tim Sonnichsen, 2012. Optimization of SNCR NO_x control for a wood-fired boiler. Combustion Science and Technology 184, 1366-1379.
- J32. **Karavalakis G.**, Pouloupoulos, Zervas E., 2012. Impact of diesel fuels on the emissions of non-regulated pollutants. Fuel 102, 85-91.
- J33. **Karavalakis G.**, Hajbabaei M., Durbin T.D., Johnson K.C., Zheng Z., Miller W.J., 2013. The effect of natural gas composition on the regulated emissions, gaseous toxic pollutants, and ultrafine particle number emissions from a refuse hauler vehicle. Energy 50, 280-291. *(Corresponding Author)*
- J34. Hajbabaei M., **Karavalakis G.**, Miller J.W., Villela M., Huaying Xu K., Durbin T., 2013. Impact of Olefin Content on Criteria and Toxic Emissions from Modern Gasoline Vehicles. Fuel 107, 671-679.
- J35. **Karavalakis G.**, Hajbabaei M., Durbin T., Zheng Z., Johnson K.C., 2012. Influence of Different Natural Gas Blends on the Regulated Emissions, Particle Number and Size Distribution Emissions from a Refuse Hauler Truck. SAE Int. J. Fuels Lubr. 5(3), 928-944. *(Corresponding Author)*
- J36. Bakeas E. and **Karavalakis G.**, 2013. Regulated, Carbonyl and Polycyclic Aromatic Hydrocarbon Emissions from a Light-Duty Vehicle Fueled with Diesel Fuel and Biodiesel Blends. Environmental Science: Processes & Impacts 15, 412-422.
- J37. Hajbabaei M., **Karavalakis G.**, Kent C. Johnson, Linda Lee, Thomas D. Durbin, 2013. Impact of natural gas fuel composition on criteria, toxic, and particle emissions from transit buses equipped with lean burn and stoichiometric engines. Energy 62, 425-434.
- J38. **Georgios Karavalakis**, Daniel Short, Diep Vu, Mark Villela, Akua Asa-Awuku, Thomas D. Durbin, 2014. Evaluating the regulated emissions, air toxics, ultrafine particles, and black carbon from SI-PFI and SI-DI vehicles operating on different ethanol and iso-butanol blends. Fuel 128, 410-421. *(Corresponding Author)*
- J39. **George Karavalakis**, Daniel Short, Diep Vu, Robert Russell, Akua Asa-Awuku, Thomas Durbin, 2014. Regulated Emissions, Air Toxics, and Particle Emissions from SI-DI Light-Duty Vehicles Operating on Different Iso-Butanol and Ethanol Blends. SAE Int. J. Fuels Lubr. 7, 183-199. *(Corresponding Author)*

- J40. Maryam Hajbabaei, **Georgios Karavalakis**, Kent C. Johnson, Jim Guthrie, Alexander Mitchell, Thomas D. Durbin, 2014. Impacts of Biodiesel Feedstock and Additives on Criteria Emissions from a Heavy-Duty Engine. Fuel Processing Technology 126, 402-414.
- J41. Ning Li, Poulomi Bhattacharya, **Georgios Karavalakis**, Keisha Williams, Nicholas Gysel, Nachamari Rivera-Rios, 2014. Emissions from Commercial-grade Charbroiling Meat Operations Induce Oxidative Stress and Inflammatory Responses in Human Bronchial Epithelial Cells. Toxicology Reports 1, 802-811.
- J42. **Georgios Karavalakis**, Daniel Short, Robert L. Russell, Heejung Jung, Kent C. Johnson, Akua Asa-Awuku, Thomas D. Durbin, 2014. Assessing the Impacts of Ethanol and Iso-butanol on Gaseous and Particulate Emissions from Flexible Fuel Vehicles. Environmental Science and Technology 48, 14016-14024. (*Corresponding Author*)
- J43. **Georgios Karavalakis**, Daniel Short, Diep Vu, Robert L. Russell, Akua Asa-Awuku, Heejung Jung, Kent C. Johnson, Thomas D. Durbin, 2015. The impact of ethanol and iso-butanol blends on gaseous and particulate emissions from two passenger cars equipped with spray-guided and wall-guided direct injection S.I. engines. Energy 82, 168-179. (*Corresponding Author*)
- J44. Daniel Short, Diep Vu, Tom Durbin, **Georgios Karavalakis**, Akua Asa-Awuku, 2015. Particle Speciation of Emissions from Iso-Butanol and Ethanol Blended Gasoline in Light-Duty Vehicles. Journal of Aerosol Science 84, 39-52.
- J45. **Karavalakis G.**, Short D., Vu D., Russell R., Asa-Awuku A., Durbin T., 2015. A Complete Assessment of the Emissions Performance of Ethanol Blends and Iso-Butanol Blends from a Fleet of Nine PFI and GDI Vehicles. SAE Int. J. Fuels Lubr. 8(2), doi:10.4271/2015-01-0957. (*Corresponding Author*)
- J46. **Karavalakis G.**, Short D., Vu D., Russell R., Maryam Hajbabaei, Asa-Awuku A., Durbin D., 2015. Evaluating the Effects of Aromatics Content in Gasoline on Gaseous and Particulate Matter Emissions from SI-PFI and SI-DI Vehicles. Environmental Science and Technology 49, 7021-7031. (*Corresponding Author*)
- J47. Daniel Short, Diep Vu, Tom Durbin, **Georgios Karavalakis**, Akua Asa-Awuku, 2015. Components of Particle Emissions from Light- Duty Spark-Ignition Vehicles with Varying Aromatic Content and Octane Rating in Gasoline. Environmental Science and Technology 49, 10682-10691.

- J48. Jian Xue, Yang Li, Xiaoliang Wang, Thomas D. Durbin, Kent C. Johnson, **Georgios Karavalakis**, Akua Asa-Awuku, Mark Villela, David Quiros, Shaohua Hu, Tao Huai, Alberto Ayala, and Heejung Jung, 2015. Comparison of vehicle exhaust particle size distributions measured by SMPS and EEPS during steady-state conditions. Aerosol Science and Technology 49, 984-996.
- J49. Diep Vu, Daniel Short, **Georgios Karavalakis**, Thomas Durbin, and Akua Asa-Awuku, 2015. Cloud Condensation Nuclei Predictions with Fast Time Resolved Aerosol Instrumentation: Hygroscopic properties of Emissions over Transient Drive Cycles. Aerosol Science and Technology 49, 1149-1159.
- J50. Durbin Thomas, **Georgios Karavalakis**, Joseph M Norbeck, Chan Sueng Park, Junior Castillo, Youngwoo Rheem, Kurt Bumiller, Jiacheng Yang, Vincent Van, Kyle Hunter, 2016. Material compatibility evaluation for elastomers, plastics, and metals exposed to ethanol and butanol blends. Fuel 163, 248-259.
- J51. **Karavalakis Georgios**, Hajbabaei Maryam, Jiang Yu, Yang Jiacheng, Johnson Kent, Cocker III David, Durbin Thomas, 2016. Regulated, Greenhouse Gas, and Particulate Emissions from Lean-Burn and Stoichiometric Natural Gas Heavy-Duty Vehicles on Different Fuel Compositions. Fuel 175, 146-156. (*Corresponding Author*)
- J52. **G. Karavalakis**, Y. Jiang, J. Yang, T. Durbin, Nuottimäki J., Lehto K., 2016. Emissions and Fuel Economy Evaluation from Two Current Technology Heavy-Duty Trucks Operated on HVO and FAME Blends. SAE Int. J. Fuels Lubr. 9(1), doi:10.4271/2016-01-0876. (*Corresponding Author*)
- J53. **Georgios Karavalakis**, Kent C Johnson, Maryam Hajbabaei, Thomas D. Durbin, 2016. Application of low-level biodiesel blends on heavy-duty (diesel) engines: feedstock implications on NO_x and particulate emissions. Fuel 181, 259-268. (*Corresponding Author*)
- J54. Jiacheng Yang, Yu Jiang, **Georgios Karavalakis**, Kent C. Johnson, Sachin Sharma, David R. Cocker III, Thomas D. Durbin, 2016. Impacts of Dimethyl Carbonate Blends on Gaseous and Particulate Emissions from a Heavy-Duty Diesel Engine. Fuel 184, 681-688.
- J55. Jian Xue, Yang Li, David Quiros, Xiaoliang Wang, Thomas D Durbin, Kent C Johnson, **Georgios Karavalakis**, Shaohua Hu, Tao Huai, Alberto Ayala, Heejung Jung, 2016. Using a new inversion matrix for a fast-sizing spectrometer and a photo-acoustic instrument to

- determine suspended particulate mass over a transient cycle for light-duty vehicles. Aerosol Science and Technology 50, 1227-1238.
- J56. Daniel Short, Diep Vu, Vincent Chen, Carlos Espinosa, Tyler Berte, **Georgios Karavalakis**, Thomas D. Durbin, and Akua Asa-Awuku, 2017. Understanding Particles Emitted from Spray and Wall-Guided gasoline Direct Injection and Flex Fuel Vehicles Operating on Ethanol and Iso-butanol Gasoline Blends. Aerosol Science and Technology 51, 330-341.
- J57. Vu D., Short D., **Karavalakis G.**, Durbin T.D., Asa-Awuku A., 2017 Will Aerosol Hygroscopicity Change with Biodiesel and Renewable Diesel Fuels and Emission Control Technologies? Environmental Science and Technology 51, 1580-1586.
- J58. **Georgios Karavalakis**, Nicholas Gysel, David Cocker, Debra A. Schmitz, Arthur K. Cho, Constantinos Sioutas, James J. Schauer, Thomas D. Durbin, 2017. Impact of Biodiesel on Regulated and Unregulated Emissions, and Redox and Proinflammatory Properties of PM Emitted from Heavy-Duty Vehicles. Science of the Total Environment, 584-585, 1230-1238. (*Corresponding Author*)
- J59. Nicholas Gysel, William A. Welch, Chia-Li Chen, Poornima Dixit, David R. Cocker III, **Georgios Karavalakis**, 2017. Characterization of the Particulate Matter Emissions and Gaseous Air Toxic Pollutants from Commercial Cooking Operations. Journal of Environmental Sciences, In Press, Corrected Proof. (*Corresponding Author*)
- J60. Nicholas Gysel, Poornima Dixit, Debra A. Schmitz, Guenter Engling Arthur K. Cho, David R. Cocker, **Georgios Karavalakis**, 2017. Chemical Speciation, Oxidative Stress, Electrophilic, and Proinflammatory Properties of Particles Emitted from Meat Cooking Operations. Submitted to Science of the Total Environment (*Corresponding Author*)
- J61. Yu Jiang, Jiacheng Yang, David Cocker III, **Georgios Karavalakis**, Kent C Johnson, Thomas Durbin. Characterizing Emissions Rates of Regulated Pollutants from MY 2012+ Heavy-Duty Diesel Vehicles Equipped with DPF and SCR. Submitted to Science of the Total Environment.
- J62. Jiang Yu, Yang Jiacheng, Gagné Stéphanie, Chan Tak, Thomson Kevin, Fofie Emmanuel, Cary Robert, Rutherford Dan, Comer Bryan, Swanson Jacob, Lin Yue, Rooy Paul, Asa-Awuku Akua, Jung Heejung, Barsanti Kelley, Karavalakis Georgios, Cocker David, Durbin Thomas. Miller Wayne. Johnson Kent. Black Carbon Measurements from a Marine Engine with Various

Fuels: Inter-comparison of Black Carbon Mass Measurements from Different Instruments.
Submitted to Atmospheric Environment.

- J63. Yu Jiang, Stéphanie Gagné, Jiacheng Yang, Tak W. Chan, Kevin Thomson, Yue Lin, Jacob Swanson, Emmanuel Fofie, Bob Cary, Dan Rutherford, Bryan Comer, Paul Van Rooy, Heejung Jung, Akua Asa-Awuku, Roya Bahreini, Kelley Barsanti, **Georgios Karavalakis**, David Cocker, Thomas D. Durbin, J Wayne Miller, Kent C. Johnson. Black Carbon Measurements from a Marine Engine with Various Fuels: Impacts of Catalytic Stripper on Black Carbon Measurement Instruments. *Submitted to Journal of Aerosol Science*

CONFERENCE PROCEEDINGS, PRESENTATIONS, AND ABSTRACTS

- C1.V. Lychnaras, S. Kalligeros, N. Liapis, Y. Panoulas, C. Panoutsou, A. Nikolaou, S. Stournas, E. Lois and **G. Karavalakis**, 2004. Implementation and Evaluation of the First Biodiesel Chain in Greece. 2nd World Conference and Technology Exhibition on Biomass for Energy, Industry and Climate Protection, 10-14 May 2004, Rome, Italy.
- C2.D.M. Korres, P. Schinas, **G. Karavalakis**, V. Tzirakis, A. Anastasakos, A. Kyriakides, S. Stournas, F. Zannikos, D. Karonis, 2005. Evaluation of Exhaust Emissions from a Single Cylinder Diesel Engine Running on a Long Duration Test Cycle. SAE Technical Paper 2005-01-3797.
- C3.**Karavalakis G**, Stournas S, Karonis D, Zannikos F, Anastopoulos G., 2005. Tobacco seed as an alternative oil crop for the production of biodiesel in Greece. Proceedings of the 14th European Biomass Conference & Exhibition, Paris, 1411-1414.
- C4.**Karavalakis G.**, Tzirakis E., Matheou L., Stournas S., Zannikos F. and Karonis D., 2005. Exhaust emissions from a stationary diesel engine fueled with transesterified animal fat and automotive diesel fuel. 9th International Conference on Environmental Science and Technology
- C5.Tzirakis E., **Karavalakis G.**, Schinas P., Korres D.M., Karonis D. and Stournas S., 2005. Diesel-water emulsion emissions and performance evaluation in public buses. 9th International Conference on Environmental Science and Technology

- C6.E. Tzirakis, **G. Karavalakis**, P. Schinas, D. Korres, D. Karonis, S. Stournas, F. Zannikos, 2006. Diesel-water Emulsion Emissions and Performance Evaluation in Public Buses in Attica Basin. SAE Technical Paper 2006-01-3398.
- C7. **Karavalakis**, G., Tzirakis, E., Stournas, S., Zannikos, F., Karonis, D., 2006. Emissions measurement in a diesel vehicle operated with diesel/ biodiesel blends on a specific driving cycle. Proceedings of 2nd Conference Environment & Transport incl. 15th Transport and Air pollution, Reims, France.
- C8.E. Tzirakis, **G. Karavalakis**, L. Mattheou, G. Anastopoulos, F. Zannikos, D. Karonis and S. Stournas, 2007. Exhaust emissions evaluation of used frying oil methyl ester blends in a diesel vehicle operated on a non-legislative driving cycle. 10th International Conference on Environmental Science and Technology
- C9.S. Kalligeros, G. Anastopoulos, **G. Karavalakis**, E. Lois, F. Zannikos, S. Stournas and D. Karonis, 2007. Exhaust emissions of a diesel engine using aviation fuel blends with biodiesel. 10th International Conference on Environmental Science and Technology
- C10. Evangelos Bakeas, **George Karavalakis**, Niki Arapaki, Evangelos Tzirakis, Stamos Stournas, Fanourios Zannikos, 2007. Regulated and Unregulated Emissions Characteristics of a Diesel Vehicle Operating with Diesel/Biodiesel Blends. SAE Technical Paper 2007-01-0071.
- C11. Evangelos G. Tzirakis, **George Karavalakis**, Fanourios E. Zannikos, Stamos Stournas, 2007. Impact of Diesel/Biodiesel Blends on Emissions from a Diesel Vehicle Operated in Real Driving Conditions. SAE Technical Paper 2007-01-0076.
- C12. **Karavalakis G.**, Tzirakis E., Zannikos F., Stournas S., Bakeas E., Arapaki N., Spanos A., 2007. Diesel/soy methyl ester blends emissions profile from a passenger vehicle operated on the European and the Athens driving cycles. SAE Technical Paper 2007-01-4043.
- C13. **G. Karavalakis**, G. Anastopoulos, S. Stournas, E. Lois, F. Zannikos, and D. Karonis, 2007. Calcium Oxide - Supported Potassium Iodide as a Heterogeneous Catalyst for Biodiesel Production. International Congress on Biodiesel: The Science and the Technologies, AOCS Meeting, 5-7 November, Vienna, Austria.
- C14. **G. Karavalakis**, E. Tzirakis, E. Bakeas, A. Spanos, F. Zannikos, and S. Stournas, 2007. Biodiesel Emissions Profile from a Passenger Vehicle Operated in Driving Cycles. International Congress on Biodiesel: The Science and the Technologies, AOCS Meeting, 5-7 November, Vienna, Austria.

- C15. Georgios Fontaras, Theodoros Tzamkiozis, Panayotis Pistikopoulos, Zissis Samaras, **Georgios Karavalakis**, Evangelos Tzirakis, Stamoulis Stournas, Evangelos Bakeas, 2008. Experimental evaluation of biodiesel impact on vehicle regulated and non-regulated exhaust emissions over legislated and real world driving cycles. 17th Transport and Air Pollution Symposium, Graz, Austria.
- C16. **George Karavalakis**, George Dedes, Evangelos Bakeas, Georgios Fontaras, Stamos Stournas, Zissis Samaras, 2009. The Effect of Biodiesel on PAHs, Nitro-PAHs, and Oxy-PAHs Emissions from a Light Vehicle Operated over the European and the Artemis Driving Cycles. SAE Technical Paper 2009-01-1895.
- C17. **George Karavalakis**, Stamoulis Stournas, Dimitrios Karonis, 2009. Evaluation of the oxidation stability of diesel/biodiesel blends using the modified Rancimat method. SAE Technical Paper 2009-01-1828.
- C18. **George Karavalakis**, Dimitrios Ampatzoglou, Evaggelos Bakeas, Stamos Stournas, Apostolos Spanos, 2009. Regulated and Unregulated Emissions of a Euro 4 SUV Operated with Diesel and Soy-based Biodiesel Blends. SAE Technical Paper 2009-01-2690.
- C19. **Karavalakis G.**, Fontaras G., Bakeas E., Stournas S., Samaras Z., 2009. Experimental evaluation of biodiesel impact on passenger car regulated and non regulated exhaust emissions and engine wear. 7th International Colloquium Fuels Mineral Oil Based and Alternative Fuels, 219-227.
- C20. **George Karavalakis**, Dimitrios Ampatzoglou, Stamoulis Stournas, Evangelos Bakeas, 2009. The Effect of Animal Fat Methyl Ester Blends on the Regulated and Unregulated Emissions from a Euro Four Passenger Vehicle. 2nd International Congress on Biodiesel: The Science and the Technologies, AOCS Meeting, 15-17 November, Munich, Germany, INVITED PAPER.
- C21. Anastopoulos G., **Karavalakis G.**, Mattheou L., Karonis D., Zannikos F., Stournas S. and Lois E., 2009. Production of biodiesel using heterogeneous KF/ZnO catalyst. 11th International Conference on Environmental Science and Technology
- C22. Deligiannis A., Anastopoulos G., **Karavalakis G.**, Mattheou L., Karonis D., Zannikos F., Stournas S. and Lois E., 2009. Castor (*ricinus communis* l) seed oil as an alternative feedstock for the production of biodiesel. 11th International Conference on Environmental Science and Technology

- C23. Deligiannis, G. Anastopoulos, **G. Karavalakis**, D. Karonis, F. Zannikos, S. Stournas, E. Lois, 2009. Preparation of Biodiesel Catalyzed by Potassium Bicarbonate Loaded on Alumina as a Solid-Base Catalyst 17th European Biomass Conference, 29 June - 2 July, 2009, Hamburg, Germany.
- C24. Georgios Fontaras, Marina Kousoulidou, **Georgios Karavalakis**, Stamoulis Stournas and Zissis Samaras., 2010. Experimental evaluation of straight vegetable oil-diesel blends application on vehicle regulated and non-regulated exhaust emissions over legislated and real world driving cycles. 18th International Symposium, Transport and Air Pollution, May 18-19.
- C25. **Karavalakis G**, Stournas S, Bakeas E., 2010. An experimental study on the impact of biodiesel origin and type on the exhaust emissions from a Euro 4 pick-up truck. SAE Technical Paper 2010-01-2273.
- C26. **Karavalakis G**, Fontaras G, Bakeas E, Stournas E., 2011. Effect of biodiesel origin on the regulated and PAH emissions from a modern passenger car. SAE World Congress 2011, 2011-01-0615.
- C27. **Karavalakis G**, Pisano J, Durbin D, Collins J, Huai T., 2011. Characterization of PM and PM Instruments for High Emitting Light-Duty Gasoline Vehicles. JSAE/SAE International Powertrains, Fuels and Lubricants Meeting 2011, 201119114.
- C28. Thomas D. Durbin, **George Karavalakis**, Kurt Bumiller, Mark Villela, and J. Wayne Miller., 2011. Effects of olefins content on exhaust emissions: CRC Project E-83. 21st CRC Real World Emissions Workshop, San Diego, California, March 20-23, 2011.
- C29. Thomas D. Durbin, **George Karavalakis**, Joseph Norbeck, and J. Wayne Miller., 2011. Development of CE-CERT's alternative transportation fuels research center of excellence. 21st CRC Real World Emissions Workshop, San Diego, California, March 20-23, 2011.
- C30. Thomas D. Durbin, **George Karavalakis**, Kent C. Johnson, Kurt Bumiller, Mark Villela, and J. Wayne Miller., 2011. Effect of natural gas fuel composition on vehicle emissions and performance. 21st CRC Real World Emissions Workshop, San Diego, California, March 20-23, 2011.
- C31. **Karavalakis G**, Karonis D, Zannikos F, Stournas S. Evaluation of the oxidation stability of diesel/biodiesel blends., 2011. 8th International Colloquium Fuels-Conventional and Future Energy for Automobiles, Stuttgart, Germany, January 19-20, 2011.

- C32. John T. Pisano, Lawrence J. Muzio, Thomas D. Durbin, **Georgios Karavalakis**, Ron Gaston, Tim Sonnichsen., 2011. Optimization of SNCR NO_x control on a wood-fired boiler. Proceedings of the Western States Section of the Combustion Institute, 2011 Fall Technical Meeting, 17 October 2011.
- C33. John T. Pisano, Thomas D. Durbin, Kent Johnson, **George Karavalakis**, Alak Chanda and G.I. Mackay. Application of a fast response tunable diode laser to the measurement of transient NH₃ emissions from a diesel SCR system. 22nd CRC Real World Emissions Workshop, San Diego, California, March 25-28, 2012.
- C34. Thomas D. Durbin, George Karavalakis, Kurt Bumiller, Mark Villela, and J. Wayne Miller. Effects of Olefins Content on Exhaust Emissions: CRC Project E-83. 22nd CRC Real World Emissions Workshop, San Diego, California, March 25-28, 2012.
- C35. Thomas D. Durbin, **George Karavalakis**, Maryam Hajbabaie, and Joseph Norbeck. Comprehensive study of the impacts of mixed/different alcohol formulations in the California fleet. 22nd CRC Real World Emissions Workshop, San Diego, California, March 25-28, 2012.
- C36. **George Karavalakis**, Thomas D. Durbin, Maryam Hajbabaie, and Alexander Mitchell. Certification of the biodiesel blend for California. 22nd CRC Real World Emissions Workshop, San Diego, California, March 25-28, 2012.
- C37. **George Karavalakis**, Thomas D. Durbin, Kent C. Johnson, Kurt Bumiller, Mark Villela, Maryam Hajbabaie, and J. Wayne Miller. Effect of Natural Gas Fuel Composition on Vehicle Emissions and Performance. 22nd CRC Real World Emissions Workshop, San Diego, California, March 25-28, 2012.
- C38. **Karavalakis G.**, Hajbabaie M., Durbin T., Zheng Z., Johnson K.C. Influence of Different Natural Gas Blends on the Regulated Emissions, Particle Number and Size Distribution Emissions from a Refuse Hauler Truck. SAE Technical Paper 2012-01-1583, 2012.
- C39. Short D., Vu D., Hajbabaie M., **Karavalakis G.**, Durbin T., Asa-Awuku A. The investigation of water-insoluble particle emissions of butanol and ethanol gasoline mixtures. American Association for Aerosol Research, 31st Annual Conference, October 8-12 Minneapolis, Minnesota, 2012.
- C40. Hajbabaie M., Zheng Z., Durbin T., Johnson K.C., Miller W.J., Cocker D.R., **Karavalakis G.** Impact of natural gas fuel composition on PM mass, number, and size distribution from

heavy-duty vehicles. American Association for Aerosol Research, 31st Annual Conference, October 8-12 Minneapolis, Minnesota, 2012.

- C41. **Karavalakis G.**, Short D., Hajbabaie M., Vu D., Villela M., Russell R., Durbin T., Asa-Awuku A. Criteria emissions, particle number emissions, size distributions, and black carbon measurements from PFI gasoline vehicles fueled with different ethanol and butanol blends. 2013 SAE World Congress & Exhibition, 2013-01-1147.
- C42. Hajbabaie M., **Karavalakis G.**, Johnson K., Mitchell A., Guthrie J., Durbin T. Comprehensive Study of Criteria Emissions from Low Blend Level Biodiesels and their Certification in California. 2013 SAE World Congress & Exhibition, 2013-04-17.
- C43. **Karavalakis G.**, Gysel N., Hajbabaie M., Durbin T., Johnson K., Miller W. Influence of different natural gas compositions on the regulated emissions, aldehydes, and particle emissions from a transit bus. 2013 SAE World Congress & Exhibition, 2013-01-1137.
- C44. **Georgios Karavalakis**, Maryam Hajbabaie, Daniel Short, Diep Vu, Robert L. Russell, Tom Durbin, Akua Asa-Awuku, Kent C. Johnson, Alexander Mitchell, Jim Guthrie. Biodiesel and renewable diesel characterization and testing in modern LD diesel passenger cars and trucks and HD engines. 23rd CRC Real World Emissions Workshop, San Diego, California, April 7-10, 2013.
- C45. Nicholas R. Gysel, Tom Durbin, Kent Johnson, David Cocker, **Georgios Karavalakis**. Effect of biodiesel feedstock on regulated emissions, gaseous toxics, and ultrafine particles from two trucks fitted with and without aftertreatment controls. 23rd CRC Real World Emissions Workshop, San Diego, California, April 7-10, 2013.
- C46. Daniel Short, Diep Vu, Robert L. Russell, Tom Durbin, Akua Asa-Awuku, **Georgios Karavalakis**. Criteria emissions, toxic pollutants, and particle number emissions from gasoline PFI and GDI vehicles operated on ethanol and iso-butanol blends. 23rd CRC Real World Emissions Workshop, San Diego, California, April 7-10, 2013.
- C47. Daniel Short, Diep Vu, Tom Durbin, **Georgios Karavalakis**, Akua Asa-Awuku. Composition of particulate matter emissions from gasoline vehicles with different ethanol and butanol fuel blends. 245th ACS National Meeting, New Orleans, LA, April 7-11, 2013.
- C48. **Georgios Karavalakis**, Nicholas Gysel, Thomas D. Durbin, Kent C. Johnson. Gaseous and Ultrafine Particle Emissions from Heavy-Duty Vehicles Operated on Different Biodiesel

Fuels. Health Effects Institute 2013 Annual Conference, San Francisco, CA, April 14-16, 2013.

[Invited Presentation]

- C49. Nicholas Gysel, Thomas D. Durbin, Debra A. Schmitz, Arthur K. Cho, **Georgios Karavalakis**. Characterizing the Gaseous Toxic Pollutants, Ultrafine Particle Emissions, Size Distributions, Electrophilic, and Redox Properties of Biodiesel Exhaust from Heavy-Duty Vehicles with and without Aftertreatment Controls. American Association for Aerosol Research, 32nd Annual Conference, September 30, Portland, Oregon, 2013.
- C50. Poornima Dixit, Nicholas Gysel, David R. Cocker III, **Georgios Karavalakis**, Arthur K. Cho, Debra A. Schmitz. Chemical Characterization and Toxicological Properties of PM_{2.5} Emissions from Commercial Cooking. American Association for Aerosol Research, 32nd Annual Conference, September 30, Portland, Oregon, 2013.
- C51. Diep Vu, Daniel Short, Mark Villela, **Georgios Karavalakis**, Thomas D. Durbin, Akua Asa-Awuku. Cloud Condensation Nuclei Closure Study for Transient Drive Cycles. American Association for Aerosol Research, 32nd Annual Conference, September 30, Portland, Oregon, 2013.
- C52. Maryam Hajbabaei, **Georgios Karavalakis**, Kent C. Johnson, Alexander Mitchell, Jim Guthrie, David R. Cocker III, Thomas D. Durbin. Development and Implementation of Low Level Biodiesel Blend Formulations to Help the Air Quality Standards in California Related to Diesel Fuel. American Association for Aerosol Research, 32nd Annual Conference, September 30, Portland, Oregon, 2013.
- C53. Daniel Short, Diep Vu, **Georgios Karavalakis**, Thomas D. Durbin, Akua Asa-Awuku. Ethanol and Iso-Butanol Gasoline Blends Use in Light Duty Gasoline Direct Injection Vehicles: Real-time Measurements of Particle Number, Sizing, and Composition. American Association for Aerosol Research, 32nd Annual Conference, September 30, Portland, Oregon, 2013.
- C54. Nicholas Gysel, Daniel Short, Poornima Dixit, Chia-Li Chen, William A. Welch, Keisha Williams, Ning Li, Akua Asa-Awuku, David R. Cocker III, **Georgios Karavalakis**. Particle Mass and Number Emissions, Size Distributions, and Composition from Commercial Charbroiling Operations - Are They Really Dangerous? American Association for Aerosol Research, 32nd Annual Conference, September 30, Portland, Oregon, 2013.

- C55. **Georgios Karavalakis**, Daniel Short, Diep Vu, Thomas Durbin, Robert Russell, Akua Asa-Awuku. The Impact of Ethanol and Iso-Butanol Blends on Regulated Emissions, Air Toxics, and Particle Emissions from SIDI Vehicles. 2013 AIChE Annual Meeting, November 3-8, San Francisco, CA, USA.
- C56. Daniel Short, Diep Vu, **Georgios Karavalakis**, Thomas Durbin, Akua Asa-Awuku. Changes in Water-Soluble Particulate Composition From Vehicles. 2013 AIChE Annual Meeting, November 3-8, San Francisco, CA, USA.
- C57. Daniel Short, Michael Giordano, Yifang Zhu, Phillip Fine, Andrea Polidori, Diep Vu, Tom Durbin, **George Karavalakis**, Akua Asa-Awuku. A Unique Online Method to Infer Water-Insoluble Particulate Mass- Fractions. 2013 European Aerosol Conference, September 6th 2013, Prague, Czech Republic.
- C58. Heejung Jung, Yang Li, Jian Xue, Kent Johnson, Tom Durbin, Ehsan Hosseini, Akua Asa-Awuku, **Georgios Karavalakis**, Daniel Short, Shaohua Hu, Tao Huai, Alberto Ayala. Determination of Suspended Exhaust PM mass for Light Duty Vehicles. 2013 European Aerosol Conference, September 6th 2013, Prague, Czech Republic.
- C59. Daniel Short, Diep Vu, Thomas Durbin, **George Karavalakis**, Akua Asa-Awuku. Assessing Rates of Global Warming Emissions from Port- Fuel Injection and Gasoline Direct Injection Engines in Light-Duty Passenger Vehicles. American Geophysical Union (AGU) Fall Meeting, San Francisco 9-13 December 2013.
- C60. Diep Vu, Daniel Short, **Georgios Karavalakis**, Thomas Durbin, Akua Asa-Awuku. Cloud condensation nuclei study over a transient drive cycle for light duty gasoline vehicles. 30th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere. March 8, 2013, California Institute of Technology, Pasadena CA.
- C61. Daniel Short, Diep Vu, **Georgios Karavalakis**, Akua Asa-Awuku. Effects of Ethanol and Butanol Blended Gasoline in Light-Duty Vehicles on Gaseous and Particle Phase Emissions. University of California Transportation Center 2013 Research Conference.
- C62. **George Karavalakis**, Daniel Short, Diep Vu, Robert Russell, Akua Asa-Awuku, Thomas Durbin. Regulated Emissions, Air Toxics, and Particle Emissions from SI-DI Light-Duty Vehicles Operating on Different Iso-Butanol and Ethanol Blends. 2014 SAE World Congress & Exhibition 2014-01-1451.

- C63. Nicholas Gysel, **George Karavalakis**, Thomas Durbin, Debra Schmitz, Arthur Cho. Emissions and Redox Activity of Biodiesel Blends Obtained From Different Feedstocks from a Heavy-Duty Vehicle Equipped With DPF/SCR Aftertreatment and a Heavy-Duty Vehicle without Control Aftertreatment. 2014 SAE World Congress & Exhibition 2014-01-1400.
- C64. Yang Li, Jian Xue, Kent Johnson, Thomas Durbin, Mark Villela, Liem Pham, Seyedehsan Hosseini, Daniel Short, **George Karavalakis**, Akua Asa-Awuku, Heejung Jung. Determination of Suspended Exhaust PM Mass for Light Duty Vehicles Using IPSD Method. 2014 SAE World Congress & Exhibition 2014-01-1594.
- C65. Poulomi Bhattacharya, Keisha Williams, Nicholas Gysel, **Georgios Karavalakis**, Ning Li. Commercial Charbroiling Emission Induces Inflammatory Response in Human Bronchial Epithelial Cells: Involvement of Oxidative Stress, Prostaglandin E2 and p38 MAPK. Submitted to American Thoracic Society International Conference, San Diego May 16-May 21, 2014, USA.
- C66. **Georgios Karavalakis**, Daniel Short, Poornima Dixit, Diep Vu, Mark Villela, Carlos, Espinoza, Thomas D. Durbin. Air toxic, particle, and PAH emissions from SI-DI spray-guided and wall-guided passenger cars fuelled with different alcohol formulations. 24th CRC Real World Emissions Workshop, San Diego, California, March 30-2, 2014.
- C67. **Georgios Karavalakis**, Thomas D. Durbin, Maryam Hajbabaei, Alexander Mitchell, and Jim Guthrie. Study of the emissions impacts of B5-B10 blends for California. 24th CRC Real World Emissions Workshop, San Diego, California, March 30-2, 2014.
- C68. Daniel Short, Diep Vu, Carlos Espinoza, Vincent Chen, Tyler Berte, **Georgios Karavalakis**, Thomas Durbin, and Akua Asa- Awuku. Contributions to Water- Insoluble PM Emissions from Gasoline Direct Injection Vehicles. 24th CRC Real World Emissions Workshop, San Diego, California, March 30-2, 2014.
- C69. Thomas D. Durbin, **George Karavalakis**, Maryam Hajbabaei, Kent Johnson, Alexander Mitchell, Jim Guthrie. A Comprehensive Evaluation of the Emissions Impacts of B5 and B10 for Heavy-Duty Diesel Engines. SAE 2014 International Powertrain, Fuels & Lubricants Meeting 14FFL-0543.
- C70. Thomas D. Durbin, **George Karavalakis**, Junior Castillo Jr, Chan Park, Kurt Bumiller, Mark Villela, Joseph Norbeck. RNG and Fungible Fuels Infrastructure Compatibility Study. SAE 2014 International Powertrain, Fuels & Lubricants Meeting 14FFL-544.

- C71. **George Karavalakis**, Daniel Short, Vincent Chen, Carlos Espinoza, Tyler Berte, Thomas Durbin, Akua Asa-Awuku, Heejung Jung, Leonidas Ntziachristos, Stavros Amanatidis, Alexander Bergmann. Evaluating Particulate Emissions from a Flexible Fuel Vehicle with Direct Injection When Operated on Ethanol and Iso-butanol Blends. SAE 2014 International Powertrain, Fuels & Lubricants Meeting 2014-01-2768.
- C72. Daniel Short, Diep Vu, Tyler Berte, **Georgios Karavalakis**, Thomas D. Durbin, Akua Asa-Awuku. Particle Number and Composition Differences From Conventional and Emerging Vehicle Technology on Varying Aromatic and High Octane Fuels. American Association for Aerosol Research, 33nd Annual Conference, October 20-24, 2014, Orlando Florida, USA.
- C73. Heejung S. Jung, Yang Li, Jian Xue, Kent Johnson, Thomas D. Durbin, Mark Villela, Liem Pham, Seyedehsan Hosseini, Zhongqing Zheng, Daniel Short, **Georgios Karavalakis**, Akua Asa-Awuku, Xiaoliang Wang, David Quiros, Shaohua Hu, Tao Huai, Alberto Ayala. Determination of Suspended Exhaust PM Mass for Light Duty Vehicles Using IPSP Method. American Association for Aerosol Research, 33nd Annual Conference, October 20-24, 2014, Orlando Florida, USA.
- C74. **Karavalakis G.**, Short D., Dixit P., Johnson K., Asa-Awuku A., Durbin D. Gaseous Toxics, Polycyclic Aromatic Hydrocarbons, and Particulate Emissions from GDI and PFI Vehicles on Alcohol Fuels. 2015 CRC Mobile Source Air Toxics (MSAT) Workshop. February 17-19, 2015, Sacramento, California. (Invited Presentation)
- C75. Thomas D. Durbin, **Georgios Karavalakis**, Junior Castillo, Chan Seung Park, Kurt Bumiller, Vincent Van, Kyle Hunter, and Joseph M. Norbeck. RNG and Fungible Fuels Infrastructure Compatibility Study. 25th CRC Real World Emissions Workshop, Long Beach, California, March 22-25, 2015.
- C76. Maryam Hajbabaie, Thomas D. Durbin, **George Karavalakis**, Kent Johnson, Alexander Mitchell, and Jim Guthrie. A Comprehensive evaluation of the emissions impacts of B5 and B10 for heavy-duty diesel engines. 25th CRC Real World Emissions Workshop, Long Beach, California, March 22-25, 2015.
- C77. **Georgios Karavalakis**, Maryam Hajbabaie, Jian Xue, Yu Jiang, Kent Johnson, Heejung Jung, Thomas Durbin. Particle and gaseous emissions from natural gas heavy-duty vehicles operated on different driving cycles. 25th CRC Real World Emissions Workshop, Long Beach, California, March 22-25, 2015.

- C78. **Georgios Karavalakis**, Daniel Short, Diep Vu, Robert Russell, Akua Asa-Awuku, Thomas Durbin. A Complete Assessment of the Emissions Performance of Ethanol Blends and Iso-Butanol Blends from a Fleet of Nine PFI and GDI Vehicles. 25th CRC Real World Emissions Workshop, Long Beach, California, March 22-25, 2015.
- C79. **Georgios Karavalakis**, Thomas Durbin, Daniel Short, Diep Vu, Robert Russell, Akua Asa-Awuku. Biodiesel and renewable diesel emissions from light-duty vehicles: CRC AVFL-17b Program. 25th CRC Real World Emissions Workshop, Long Beach, California, March 22-25, 2015.
- C80. **Karavalakis G.**, Short D., Vu D., Russell R., Asa-Awuku A., Durbin D. A complete assessment of the emissions performance of ethanol blends and iso-butanol blends from a fleet of nine PFI and GDI vehicles. 2015 SAE World Congress & Exhibition, 2015-01-0957.
- C81. D. Vu, D. Short, **G. Karavalakis**, T.D. Durbin, A. Asa-Awuku. Evaluating the Hygroscopic Properties of Vehicle Emissions Over Transient Drive Cycles. 11th International Conference on Carbonaceous Particles in the Atmosphere. Lawrence Berkeley National Laboratory, Berkeley, California, August 10-13 2015.
- C82. Diep Vu, Daniel Short, **Georgios Karavalakis**, Thomas D. Durbin, Akua Asa-Awuku. How will Modern Light-Duty Diesel Vehicles Modify CCN? American Association for Aerosol Research, 34th Annual Conference, October 12-16, 2015, Minneapolis, Minnesota, USA.
- C83. Diep Vu, Daniel Short, **Georgios Karavalakis**, Thomas D. Durbin, Akua Asa-Awuku. How will Modern Light-Duty Diesel Vehicles Modify CCN? 2015 AIChE Annual Meeting, November 8-13, 2015, Salt Lake City, Utah, USA.
- C84. **G. Karavalakis**, Y. Jiang, J. Yang, M. Hajbabaie, K. Johnson, T. Durbin. Gaseous and Particulate Emissions from a Waste Hauler Equipped with a Stoichiometric Natural Gas Engine on Different Fuel Compositions. 2016 SAE World Congress & Exhibition, 2016-01-0799.
- C85. **G. Karavalakis**, Y. Jiang, J. Yang, T. Durbin, Nuottimäki J., Lehto K. Emissions and Fuel Economy Evaluation from Two Current Technology Heavy-Duty Trucks Operated on HVO and FAME Blends. 2016 SAE World Congress & Exhibition, 2016-01-0876.

- C86. Kanok Boriboonsomsin, George Scora, **George Karavalakis**, Tom Durbin, Kent Johnson. Modeling emissions from light-duty vehicles traveling at high speeds in California. 26th CRC Real World Emissions Workshop, Newport Beach, California, March 13-16, 2016.
- C87. Patrick Roth, Carlos Espinosa, Diep Vu, Kanok Boriboonsomsin, Tom Durbin, Akua Asa-Awuku, **Georgios Karavalakis**. Particulate emissions from light-duty vehicles operating at low and high speeds representative for California highways. 26th CRC Real World Emissions Workshop, Newport Beach, California, March 13-16, 2016.
- C88. Kent C. Johnson, Yu Jiang, Jiacheng Yang, **Georgios Karavalakis**, Thomas D. Durbin, David Cocker III, and J. Wayne Miller. Summary of Black Carbon Emissions. 26th CRC Real World Emissions Workshop, Newport Beach, California, March 13-16, 2016.
- C89. **Georgios Karavalakis**, Diep Vu, Daniel Short, Akua Asa-Awuku, Thomas Durbin. impact of biodiesel blending on gaseous and particulate emissions during regeneration of diesel particulate filter from light-duty vehicles: results from the AVFL-17b study. 26th CRC Real World Emissions Workshop, Newport Beach, California, March 13-16, 2016.
- C90. **Georgios Karavalakis**, Daniel Short, Diep Vu, Robert Russell, Akua Asa-Awuku, Thomas Durbin. the effect of gasoline aromatics on the emissions from a fleet of PFI and GDI vehicles. 26th CRC Real World Emissions Workshop, Newport Beach, California, March 13-16, 2016.
- C91. Diep Vu, Patrick Roth, **Georgios Karavalakis**, Akua Asa-Awuku. Secondary Organic Aerosol Forming Potential from Light-Duty Gasoline Direct Injection Vehicles. 26th CRC Real World Emissions Workshop, Newport Beach, California, March 13-16, 2016.
- C92. Jiacheng Yang, Yu Jiang, **Georgios Karavalakis**, Kent C. Johnson, Sachin Sharma, David R. Cocker III, and Thomas D. Durbin. Impacts of Dimethyl Carbonate Blends on Emissions from a Heavy-Duty Diesel Engine. 26th CRC Real World Emissions Workshop, Newport Beach, California, March 13-16, 2016.
- C93. **Karavalakis G.**, Short D., Vu D., Yang J., Durbin T. Monoaromatic and Polycyclic Aromatic Hydrocarbon (PAH) Emissions from GDI and PFI Vehicles on Ethanol and Iso-Butanol Blends. SAE 2016 International Powertrains, Fuels & Lubricants Meeting, October 24-26, Baltimore, Maryland, USA, 16FFL-0362.
- C94. **Karavalakis G.**, Short D., Vu D., Roth P., Yang J., Durbin T., Asa-Awuku A. Primary Particulate Emissions and Secondary Organic Aerosol Formation from Current Technology

Gasoline Direct Injection Vehicles. SAE 2016 International Powertrains, Fuels & Lubricants Meeting, October 24-26, Baltimore, Maryland, USA, 16FFL-0363.

- C95. Liem Pham, Kent Johnson, Heejung Jung, Thomas D. Durbin, **Georgios Karavalakis**, David Kittelson. Very Low PM Mass Measurements Phase 2: Evaluation of Partial Flow Dilution. American Association for Aerosol Research, 35th Annual Conference, October 17-21, 2016, Portland, Oregon, USA.
- C96. Patrick Roth, Diep Vu, Jiacheng Yang, Tyler Berte, Thomas D. Durbin, **Georgios Karavalakis**, Akua Asa-Awuku. Secondary Organic Aerosol Forming Potential from Emerging Light-Duty Gasoline Direct Injection Vehicles. American Association for Aerosol Research, 35th Annual Conference, October 17-21, 2016, Portland, Oregon, USA.
- C97. Jiacheng Yang, Thomas Durbin, Michael Geller, Rasto Brezny, and **George Karavalakis**. Gaseous and Particulate Emissions from a Gasoline Direct Injection Vehicle With and Without a Gasoline Particulate Filter. 2017 SAE World Congress & Exhibition.

BOOK CHAPTERS

Durbin, T.D., **Karavalakis, G.**, Johnson, K.C. 2016. Environmental and Performance Impacts of Alternative Fuels in Transportation Applications. In: Valorization of Lignocellulosic Biomass in a Biorefinery: From Logistics to Environmental and Performance Impact Editors, (Eds.) R. Kumar, S. Singh, V. Balan, Nova Science Publishers, Chapter 11, 339-446.

Manuscripts in Preparation

Yuwei Han, Kent Johnson, Thomas D. Durbin, **Georgios Karavalakis**, Yu Jiang, Jiacheng Yang, David Cocker. Ultra-Low NO_x Measurement and Emission Factors Evaluation of a Compressed Natural Gas (CNG) Heavy-Duty Engine. *To be submitted to Fuel. (Corresponding Author)*

Georgios Karavalakis, Jiacheng Yang, Thomas D. Durbin, Chris Ruehl, et al. Emissions from Current Technology GDI Vehicles: Particulate Emissions, Oxidative Stress, and Inflammatory Responses. *To be submitted to Environmental Science and Technology. (Corresponding Author)*

Georgios Karavalakis, Jiacheng Yang, Thomas D. Durbin, Rasto Brezny, et al. Particulate Matter Emissions and Toxic Pollutants from Two GDI Vehicles Operated With and Without a Gasoline

Particulate Filter. *To be submitted to Environmental Science and Technology. (Corresponding Author)*

PATENTS

WO2010097640 (A1)/US 2012/00238811 A1 - Biodiesel containing non-phenolic additives and thereby possessing enhanced oxidative stability and low acid number. (Inventors: **G. Karavalakis** and S. Stournas).

GRANTS

Current Grants

1. Title of Grant: Evaluation of Regulated and Toxic Emissions from Two-Stroke Utility Engines, Sponsor: Calumet Specialty Products Partners, L.P., Role: Primary Investigator, \$48,071
2. Title of Grant: Biodiesel and Renewable Diesel Characterization and Testing in Modern LD Diesel Passenger Cars and Trucks, Sponsor: Coordinating Research Council (CRC), Role: Primary Investigator, \$695,000
3. Title of Grant: Characterization of the Physical, Chemical, and Biological Properties of PM Emissions, VOCs, and Carbonyl Groups from Commercial Cooking Operations, Sponsor: South Coast Air Quality Management District (SCAQMD), Role: Primary Investigator (Sub-contractor: A.K. Cho, UCLA), \$150,000
4. Title of Grant: Health Effects of PM Particles Emitted from Heavy-Duty Vehicles – A Comparison Between Different Biodiesel Fuels, Sponsor: South Coast Air Quality Management District (SCAQMD), Role: Primary Investigator (Sub-contractors: A.K. Cho, UCLA, C. Sioutas, USC), \$207,500
5. Title of Grant: The Development of Quantitative Cellular Assays for Use in Understanding the Chemical Basis of Air Pollutant Toxicity, Sponsor: South Coast Air Quality Management District (SCAQMD), Role: Co-Primary Investigator (PI: A.K. Cho, UCLA), \$61,702
6. Title of Grant: Alternative Transportation Fuels Research “Center of Excellence” Characterization of PM Emissions from Next Generation Alternative Fuel Strategies, Sponsor: South Coast Air Quality Management District (SCAQMD), Role: Co-Primary Investigator (PI: T. Durbin, UCR), \$174,940

7. Title of Grant: Biodiesel Emissions Characterization Study of Engines Fueled with B5 Biodiesel Blends, Sponsor: California Air Resources Board (CARB), Role: Primary Investigator, \$480,000
8. Title of Grant: Evaluation of Fuel Additives as Certified Biodiesel B20 NO_x Mitigation Strategies, Sponsor: California Air Resources Board (CARB), Role: Co-Primary Investigator (PI: T. Durbin, UCR), \$300,000
9. Title of Grant: Evaluation of the Performance and Air Pollutant Emissions of Vehicles Operating on Various Natural Gas Blends, Sponsor: California Air Resources Board (CARB), Role: Primary Investigator, \$130,400
10. Title of Grant: Impacts of Aromatics in Late Model Vehicles, Sponsor: American Petroleum Institute (API), Role: Co-Primary Investigator (PI: T. Durbin, UCR), \$264,768
11. Title of Grant: CARB Biodiesel Certification Testing, Sponsor: California Air Resources Board (CARB), Role: Co-Primary Investigator (PI: T. Durbin, UCR), \$300,000
12. Title of Grant: RNG and Fungible Fuels Infrastructure Compatibility Study, Sponsor: California Energy Commission (CEC), Role: Co-Primary Investigator (PI: J. Norbeck, UCR), 480,000
13. Title of Grant: Impact of Natural Gas Composition on the Performance and Emissions of Heavy-duty Natural Gas Vehicles – Phase 2, Sponsor: California Energy Commission (CEC), Role: Primary Investigator, \$400,963
14. Title of Grant: Evaluation of the Performance and Air Pollutant Emissions of Vehicles Operating on Various Natural Gas Blends – Phase 2, Sponsor: California Air Resources Board (CARB), Role: Co-Primary Investigator (PI: T. Durbin, UCR), \$120,000
15. Title of Grant: Alternative Transportation Fuels Research Testing Program, Sponsor: California Energy Commission, Role: Co-Primary Investigator (PI: T. Durbin, UCR), \$ 1,200,000
16. Title of Grant: Effects of Olefins Content on Exhaust Emissions, Sponsor: Coordinating Research Council (CRC), Co-Primary Investigator (PI: T. Durbin, UCR), \$ 210,757
17. Title of Grant: Aerodynamic GHG Emissions Reduction Assessment of Non 53-foot Trailers Pulled by Heavy-Duty Tractors, Sponsor: California Air Resources Board (CARB), Role: Co-Primary Investigator (PI: Kent Johnson, UCR), \$500,000

18. Title of Grant: Evaluation of the feasibility, cost-effectiveness, and necessity of equipping small off-road diesel engines with advanced PM and/or NO_x aftertreatment, Sponsor: California Air Resources Board (CARB), Role: Co-Primary Investigator (PI: T. Durbin, UCR), \$800,000
19. Title of Grant: Secondary Organic Aerosol (SOA) Forming Potential from Light-Duty Gasoline Direct Injection Vehicles, Sponsor: South Coast Air Quality Management District (SCAQMD), Role: Primary Investigator, \$150,000
20. Title of Grant: Secondary Organic Aerosol (SOA) Forming Potential from Light-Duty Gasoline Direct Injection Vehicles Fitted with Gasoline Particle Filters (GPFs), Sponsor: Manufacturers of Emission Controls Association (MECA), Role: Primary Investigator, \$50,000
21. Title of Grant: NG Infrastructure Study, Sponsor: UC Davis, Role: Co-Primary Investigator, \$62,500
22. Title of Grant: Fuel Economy Testing for Two Heavy-Duty Vehicles Operated with Alternative Diesel Formulations, Sponsor: Neste Oil Corporation, Role: Primary Investigator, \$84,000
23. Title of Grant: Very Low PM Mass Measurements Phase 2: Evaluation of Partial Flow Dilution (E-99 Phase 2), Sponsor: Coordinating Research Council (CRC), Role: Co-Primary Investigator, \$530,000
24. Title of Grant: Cloud Forming Potential of Aerosol from Light-Duty Gasoline Direct Injection Vehicles, Sponsor: US Department of Transportation (DoT), National Center for Sustainable Transportation (NCST), Role: Primary Investigator, \$104,323
25. Title of Grant: Fuel Effects on PM Emissions from Different Vehicle/Engine Configurations: A Literature Review, Sponsor: American Petroleum Institute (API), Role: Primary Investigator, \$54,000
26. Title of Grant: Emission Testing on Mexican Vehicles using PEMEX Diesel Fuel, Sponsor: Mexican Petroleum Institute, Role: Primary Investigator, \$36,700
27. Title of Grant: Heavy-Duty on Road Vehicle Inspection and Maintenance Program, Sponsor: California Air Resources Board (CARB), Role: Co-Primary Investigator (PI: T. Durbin, UCR), \$500,000

28. Title of Grant: Certification and In-Use Compliance Testing for Heavy-Duty Diesel Engines to Understand High In-Use NO_x Emissions, Sponsor: California Air Resources Board (CARB), Role: Co-Primary Investigator (PI: T. Durbin, UCR), \$500,000
29. Title of Grant: Secondary Organic Aerosol (SOA) Forming Potential from Flexible Fuel Vehicles with Direct Injection Fueling on E10, E10 with high aromatics content, E30, and E85 Blends, Sponsor: ICM Inc., Role: Primary Investigator, \$126,000
30. Title of Grant: Influence of Ethanol and Aromatics Contents on Gaseous and Particulate Emissions from Current Technology GDI Vehicles, Sponsor Growth Energy, Role: Primary Investigator, \$560,547
31. Title of Grant: Combustion and Emissions Characteristics of a Medium Duty Vehicle Operating on a Hydrogenated Vegetable Oil Renewable Diesel, Sponsor: Coordinating Research Council, Role: Primary Investigator, \$183,194
32. Title of Grant: Real-world evaluation of PM and PN emissions from light-duty GDI vehicles using PEMS, Sponsor: South Coast Air Quality Management District (SCAQMD), Role: Primary Investigator, \$222,000
33. Title of Grant: Real-world evaluation of PM and PN emissions from a light-duty GDI vehicles with GPF using PEMS, Sponsor: Manufacturers of Emission Controls Association (MECA), Role: Primary Investigator, \$51,500