Chancellor's Distinguished Fellows Program 2008-2009 Selective Bibliography UC Irvine Libraries

Robert F. Sawyer

9 February 2009

Prepared by: Julia Gelfand Applied Sciences & Engineering Librarian jgelfand@uci.edu

Table of Contents

Books and Book Chapters	p.1
Selected Journal Articles	p.1 - 5
Government Documents	p.5 - 6
Technical Reports	p.6 - 9
Conference Papers, Proceedings & Symposia	p.10
Dissertation	p.10
Public Addresses	p.10 -11
Honors & Awards	p.11
Public Service & Professional Leadership	p.11 -12
Academic and Professional Service	p.10
About Robert F. Sawyer	p.13

Books & Book Chapters (UCI holdings are noted, SL=Science Library)

Sawyer, R.F. (1999), "Motor vehicles and urban air pollution control," in Poon, C.S. and Li, X.Z. eds, *Urban Pollution Control Technology*. Hong Kong: Hong Kong Polytechnic University: 23-29.

Dryer, Frederick L and Sawyer, Robert F., eds. (1997), *Physical and Chemical Aspects of Combustion: A Tribute to Irvin Glassman*. Amsterdam: Gordon & Breach Pubs. SL QD 516 P49 1997

Sawyer, R.F. and Johnson, J.J. (1995). "Diesel emissions and control technology," in *Diesel Exhaust: A Critical Analysis of Emissions, Exposure and Health Effects*. Cambridge, MA: Health Effects Institute: 65-81.

Selected Journal Articles

Sawyer, R.F. (May 2008), "Hydrodynamics of an electron-position plasma near a black hole," *Physical review D*, 77(10).

- Sawyer, R.F. (August 2006), "Bulk Viscosity of a gas of neutrinos and coupled scalar particles, in the era of recombination," *Physical Review D*, 74(4).
- Holder, A., Lucas, D., Goth-Goldstein, R. Sawyer, R.F., Koshland, C. (March 26, 2006),"Characterization of diesel exhaust particulate for lung cell exposure," *Abstracts of Papers of the American Chemical Society.*
- Choi, J.F., Lucas, D. Koshland, C.P., Sawyer, R.F. (December 22, 2005), "Photochemical interaction of polystyrene nanospheres with 193 nm pulsed laser light," *Journal of Physical Chemistry B*, (109)50, 23905-23910.
- Sawyer, R.F. (December, 1 2005), "Effects of ion and electron correlations on neutrino scattering in the infall phase of a supernova," *Physical Letters B*, 630(1-2), 1-6.
- Stipe, C.B., Lucas, D. Koshland, C.P., Sawyer, R.F. (November 1, 2005), "Soot particle disintegration and detection by two-laser excimer laser fragmentation fluorescence spectroscopy," *Applied Optics*, 44(31), 6537-6544.
- Choi, J.H., Koshland, C.P., Sawyer, R.F., Lucas, D. (October 2005), "Measurement of polystyrene nanospheres using excimer laser fragmentation fluorescence spectroscopy," *Applied Spectroscopy*, 59(10), 1203-1208.
- Sawyer, R.F. (August 2005), "Speed-up of neutrino transformations in a supernova environment," *Physical Review D*, 72(4).
- Choi, J.H., Stipe, C.B., Koshland, C.P., Sawyer, R.F., Lucas, D. (June, 15, 2005), "NaCl particle interaction with 193-nm light: Ultraviolet photofragmentation and nanoparticle production," *Journal of Applied Physics*, 97(12):124315.
- Stipe, C.B., Higgins, B.S., Lucas, D., Koshland, C.P., Sawyer, R.F. (February 2005) "Detection of lead in soil with exclimer laser fragmentation fluorescence spectroscopy," *Applied Spectroscopy*, 59(2), 258-261.
- Stipe, C.B. Choi, J.H., Lucas, D., Koshland, C.P., Sawyer, R.F. (October 2004), "Nanoparticle production by UV irradiation of combustion generated soot particles," *Journal of Nanoparticle Research*, 6(5), 467-477.
- Sawyer, R.F. (September 24, 2004), "Collective polarization exchange in collisions of photon clouds," *Physical Review Letters*, 93(13).
- Sawyer, R.F. (August 2004), "Evolution speed in some coupled-spin models," *Physical Review A*, 70(2).
- Clack, H.L., Koshland, C.P., Lucas, D., Sawyer, R.F. (May-June 2004), "Development of an airblast atomizer for independent control of droplet size and spray density," *Atomization and Sprays*, 14(3), 265-287.
- Sawyer, R.F. (April 15, 2004), "Absence of resonant enhancement in some inclusive rates," *Physical Review D*, 69(8).

- Bell, N.F., Rawlinson, A.A., Sawyer, R.F. (October 30, 2003) "Speed-up through entanglement many-body effects in neutrino processes," *Physical Letters B*, 573(1-4), 86-93.
- Sawyer, R.F. (September 15, 2003) "Neutrino transport in accretion disks," *Physical Review D*, 68(6).
- Bell, N.F., Sawyer, R.F., Volkas, R.R., Wong, Y.Y.Y. (September 2003) "State permutations from manipulation of near-level-crossings," *Physical Review A*, 68(3)
- Stipe, C.B., Higgins, B.S., Lucas, D., Koshland, C.P., Sawyer, R.F. (2002), "Soot detection using exclimer laser fragmentation fluorescence spectroscopy," *Proceedings of the Combustion Institute*, 29, 2759-2766.
- Damm, C.J., Lucas, D., Sawyer, R.F., Koshland C.P., (2002), "Characterization of diesel particulate matter with exclimer laser fragmentation fluorescence spectroscopy," *Proceedings of the Combustion Institute*, 29, 2767-2774.
- Bahcall, J.N., Brown, L.S., Gruzinov, A., Sawyer, R.F. (June 2002), "The Salpeter plasma corrections for solar fusion reactions," *Astronomy % Astrophysics*, 388(2), 660.
- Bell, N.F., Sawyer, R.F., Volkas, R.R., (May 2002), "Entanglement and quantal coherence: Study of two limiting cases of rapid system-bath interactions," *Physical Review A*, 65(5).
- Bell, N.F., Sawyer, R.F., Volkas, R.R., Wong, Y.Y.Y. (April 2002), "Generation of entangles states and error protection from adiabatic avoided level crossings," *Physical Review A*, 65(4).
- Buckley, S.G., Sawyer, R.F., Koshland, C.P., Lucas, D., (March 2002), "Measurements of lead vapor and particulate in flames and post-flame gases," *Combustion and Flame*, 128(4).
- Bahcall, J.N., Brown, L.S., Gruzinov, A., Sawyer, R.F., (February 2002), "The Salpter plasma correction for solar fusion reactions," *Astronomy & Astrophysics*, 381(1), 291-295.
- Prakash, M., Lattimer, J.M., Sawyer, R.F., Volkas, R.R., (2001), "Neutrino propagation in dense astrophysical systems," *Annual Review of Nuclear and Particle Science*, 51, 295-344.
- Damm, C.J., Lucas, D., Sawyer, R.F., Koshland, C.P., (November 2001), "Real-time measurement of combustion generated particles with photofragmentation-fluorescence," *Applied Spectroscopy*, 55(11), 1487-1482.
- Baum, H.R., Ezekoye, O.A., Grigoropoulos, C.P., Hartnett, J.P., Humphrey, J.A.C., Lavine, A.G., Lior, N., Mahjan, R.L., Minkowycz, W.J., Pagni, P.J., Sawyer, R.F., Smith, R.N., Yang, K.T., (August 2001), "Professor Ralf Greif on his 65th birthday," *International Journal of Heat and Mass Transfer*, 44(16), 2995-2996.
- Brown, L.S., Sawyer, R.F., (April 15, 2001), "Finite temperature correction to weak rater prior to nucleosynthesis," *Physical Review D*, 63(8).

- Damm, C.J., Lucas, D., Sawyer, R.F., Koshland, C.P., (February-March 2001), "Excimer laser fragmentation-fluorescence spectroscopy as a method for monitoring ammonium sulfate particles," *Chemosphere*, 42(5-7), 655-661.
- Higgins, B., Thomson, M.J., Lucas, D., Koshland, C.P., Sawyer, R.F., (February-March 2001), "An experimental and numerical study of the thermal oxidation of chlorobenzene," *Chemosphere*, 42(5-7), 703-717.
- Franklin, P.M., Koshland, C.P., Lucas, D., Sawyer, R.F., (February-March 2001), "Evaluation of combustion by-products of MTBE as a component of reformulated gasoline," *Chemosphere*, 42(5-7), 861-872.
- Bell, N.F., Sawyer, R.F., Volkas, R.R., (February 2001), "Synchronisation and MSW sharpening of neutrino propagating in a flavor blind medium," *Physics Letters B*, 500(1-2), 16-21.
- Sawyer, R.F., Harley, R.A., Cadle, S.H., Norbeck, J.M., Slott, H.A., (2000), "Mobile sources critical review: 1998 NASTRO Assessment," *Atmospheric Environment*, 34(12-14), 2161-2181.
- Kean, A.J., Sawyer, R.F., Harley, R.A. (November 2000), "A fuel-based assessment of diesel based engine emissions," *Journal of the Air & Waste Management Association*, 50(11), 1929-1939.
- Franklin, P.M., Koshland, C.P., Lucas, D., Sawyer, R.F. (September 15, 2000), "Clearing the air: using scientific information to regulate reformulated fuels," *Environmental Science & Technology*, 34(18), 3857-3863.
- Sgro, L.A., Koshland, C.P., Lucas, D., Sawyer, R.F. (March 2000), "Postflame reaction chemistry of dichloromethane: Variations in equivalence ratio and temperature," *Combustion and Flame*, 120(4), 492-503.
- Lee, S.C., Koshland, C.P., Lucas, D., Sawyer, R.F. (October 1999), "Effects of postflame injection of fuel on the destruction of chlorinated hydrocarbons and the oxidation of NO," *Combustion and Flame*, 119(1-2), 154-160.
- Sawyer, R.F. (July 15, 1999), "Some singularities of the correlation functions that determine neutrino opacities," *Physical Review D*, 60(2).
- Sawyer, R.F. (February 25, 1999), "Do neutrinos have mass only within matter?" *Physical Letters B*, 448(3-4), 174-179.
- Burrows, A., Sawyer, R.F. (January 1999), "Many-body corrections to charged-current neutrino absorption rates in nuclear matter," *Physical Review C*, 59(1), 510-514.
- Clack, H.L., Koshland, C.P., Lucas, D., Sawyer, R.F. (1999), "Postflame by-product formation from size- and density-controlled 1,1,1-trichloroethane sprays," *Environmental Engineering Science*, 16(3), 177-185.

- Buckley, S.G., Damm, C.J., Vitovee, W.M., Sgro, L.A., Sawyer, R.F., Koshland, C.P., Lucas, D. (December 20, 1998), "Ammonia detection and monitoring with photoframentation fluorescence," *Applied Optics*, 37(36), 8382-8391.
- Adelberger, E.G., Austin, S.M., Bahcall, J.N., Balantekin, A.B., Bogaert, G., Brown, L.S., Buchmann, L., Cecil, F.E., Champagne, A.E., de Braecheleer, L., Duba, C.A., Elliott, S.R., Freedman, S.J., Gai, M., Goldring, G., Gould, C.R., Gruzinov, A., Langanke, K., Motobayashi, T., Pandharipande, V., Parker, P., Robertson, R.G.H., Rolfs, C., Sawyer, R.F., Shaviv, N., Shoppa, T.D., Snover, K.A., Swanson, E., Tribble, R.E., Turch-Chieze, S., Wikerson, J.F. (October 1998), "Solar fusion cross sections," *Reviews of Modern Physics*, 70(4), 1265-1291.
- Burrows, A., Sawyer, R.F. (July 1998), "Effects of correlations on neutrino opacities in nuclear matter," *Physical Review C*, 58(1), 554-571.
- Dun-Rankin, D., Sawyer, R.F. (February, 1998), "Tulip flames: changes in shape of premixed flames propagating in closed tubes," *Experiments in Fluids*, 24(2), 130-140.
- Brown, L.S., Sawyer, R.F. (November 10, 1997), "Nuclear electron capture in a plasma," *Astrophysical Journal*, 489(2), 968-975.
- Harley, R.A., Sawyer, R.F. and Milford, J.B. (1997), "Updated photochemical modeling for California's South Coast Air Basin: Comparison of chemical mechanisms and motor vehicle emission inventories," *Environmental Science and Technology*, 31, 2829-2839.
- Harley, R.A., Sawyer, R.F., Milford, J.B. (October 1997), "Updated photochemical modeling for California's South Coast Air Basin: Comparison of chemical mechanisms and motor vehicle emission inventories," *Environmental Science & Technology*, 31(10), 2829-2839.
- Utell, M., Warren, J., and Sawyer, R.F. (1994), "Public health risks from auto emisisions," *Annual Review of Public Health*, 15, 157-178.
- Calvert, J.G. Heywood, J.G., Sawyer, R.F. and Seinfeld, J.H. (1993), "Achieving acceptable air quality: Some reflections on controlling vehicle emissions," *Science*, 261, 37-45.

Government Documents

- Koshland, C.P., Sawyer, R.F., Lucas, D., and Franklin, P., (October 1998), *Evaluation of Automotive MTBE Combustion Byproducts*. Energy and Resources Group. University of California, Berkeley, Report to the California State Legislature under S.B. 521: Effects of MTBE.
- Sawyer, R.F., Burgess, A.R., Dryer, F.L. (1997), Twenty-Sixth Symposium (International) on Combustion, vol. 1. NTIS Report AR0351111EGCF; vol. 2. NTIS Report AR0351112EGCF

Sawyer, R.F. (1983), Assessment of the Impact of Light Duty Diesel Vehicles on Soiling in California. Berkeley, CA: Sawyer Associates. <u>ftp://ftp.arb.ca.gov/carbis/research/apr/past/a2-064-32.pdf</u>

Technical Reports

- Clack, H.L., Koshland, C.P., Lucas, d., Sawyer, R.F. (2000), Vaporization and Thermal Oxidation of Chlorinated Hydrocarbon/Alcohol Sprays. NTIS Report ADA453282.
- Pollack, A.K., et al (1999), Investigation of Emission Factors in the California EMFAC7G Model. Final Report for CRC Project E-39. PB99-149718INZ. Prepared for ENVIRON International Corp., Novato, CA. by Coordinating Research Council, Atlanta, GA.
- Dibble, R.W., Chen, J.Y., Sawyer, R.F. (1995), Lean Premixed Combustion Stabilized by Radiation Feedback and Heterogeneous Catalysis. NTIS Report OEMC2906196C0656.
- Forsha, M.D., Sawyer, R.F., Oppenheim, A.K. (1986), Fuel Injection System for Shock Tube Studies of the Ignition of Preheated Fuels. NTIS Report LBL21103.
- Parker, T.E., Sawyer, R.F., Oppenheim, A.K. (1986), *Thermodynamic Properties of Hydrocarbons*. NTIS Report LBL21104.
- Brehob, D.D. and Sawyer, R.F. (1985), *Compression Ignition of Coal Slurry Fuels*. NTIS Report LBL20878
- Brehob, DD, Robben, F, Sawyer, RF, Sherman, PM (1985), *Coal Slurry Ignition in a Diesel Engine Simulator.* NTIS Report LBL19129.
- Dunn-Rankin, D. and Sawyer, R.F. (1985), LDA (Laser Doppler Anemometer) Study of the Unburned Gas Motion Induced by Non-steady Flame Propagation in a Constant Volume Duct. NTIS Report LBL19165.
- Dunn-Rankin, D. and Sawyer, R.F. (1985), Interaction of a Laminar Flame with Its Self-Generated Flow During Constant Volume Combustion. NTIS Report LBL19164.
- Sawyer, R.F. (1985), *Reduction of Pollutant Formation in Combustion Processes*. NTIS Report DEOSF00098T5.
- Dunn-Rankin, D., Cheng, R.K., Sawyer, R.F. (1984), LDA Study of Non-Steady Flame Propagation in a Constant Volume Duct. NTIS Report LBL18150.
- Sawyer, R.F. and Pitz, W.J. (1983), Assessment of the Impact of Light Duty Diesel Vehicles on Soiling in California. Berkeley, CA: Sawyer Assoc. Also available with revisions from the California Air Resources Board at www.arb.ca.gov/research/apr/past/a2-064-32.pdf
- Dunn-Rankin, D. and Sawyer, R.F. (1983). Combustion of Lean Mixtures under Simulated Internal Combustion Engine Conditions. NTIS Report DOESF00098T6.

Brehob, DD, Robben, F., Sawyer RF, Pearce, KR (1982), Emission Characteristics of a Medium-Speed Diesel Using Water-Emulsified Residual Fuels. NTIS Report LBL14987.

Brehob, DD, Robben, F., Sawyer, RF, Pearce, KR, Hinrichs, TL (1982), Performance of Water-Emulsified Residual Fuels in a Medium-Speed Diesel. NTIS Report LBL14988.

Steinert, W., Dunn-Rankin, D., Sawyer, R.F. (1982), *Influence of Chamber Length and Equivalence Ratio on Flame Propagation in a Constant-Volume Duct*. NTIS Report LBL14965.

Sawyer, R.F., Hart, J.R., Ohtake, K. (1982), *Flow and Combustion Characteristics of a Two Dimensional Spouted Bed.* NTIS Report LBL14242.

Woodard, J.B., Hirvo, D.H., Greif, R., Sawyer, R.F. (1982), *Flame Propagation, Wall Heat Transfer and Their Interaction in Lean Premixed Gases*. NTIS Report LBL13950.

- Woodard, J.B., Hirvo, D.H., Greif, R., Sawyer, R.F. (1981), Wall Heat Transfer and Flame Propagation in a Constant Volume Duct. NTIS Report LBL13021.
- LaFond, J.F., Hart, J.R., Sawyer, R.F. (1981), Staged Fluidized-Bed Combustor for the Study of Pollutant Formation and Destruction. NTIS Report LBL13020.
- Brown, N.J., Sawyer, R.F., Lucas, D. (1981), *Characterization of the Selective Reduction of NO* by NH3. NTIS Report LBL12549.
- Pitz, W.J. and Sawyer, R.F. (1981), Modeling of Burning and Extinction Characteristics of a Polymer Diffusion Flame and Comparison with Experiment. NTIS Report LBL12214.
- Pitz, W.J., Brown, N.J., Sawyer, R.F. (1980), *Structure of a Poly(Ethylene) Opposed Flow Diffusion Flame*. NTIS Report LBL10784.
- Sawyer, R.F. (1980), Formation and Destruction of Pollutants in combustion Processes: Clearing the Air on the Role of Combustion. NTIS Report LBL11237.
- Ganji, A.T. and Sawyer, R.F. (1980), *Turbulence, Combustion, Pollutant, and Stability Characterization of a Premixed, Step Combustor.* NTIS Report NASACR3230.
- Matthews, R.D. and Sawyer, R.F. (1979), *Combustion Sources of Unregulated Gas Phase Nitrogeneous Species.* NTIS Report LBL10280.
- Brown, N.J., Sawyer, R.F., Eitzen, T.S. (1979), Characterization Studies of the Selective Reduction of NO by NH sub3. NTIS Report LBL10254.
- Pitz, W.J., Browm, N.J., Sawyer, R.F. (1979), *Flame Structure Measurement of Polymer Diffusion Flames*. NTIS Report LBL9567.
- Smith, O.I, Westbrook, C.K., Sawyer, R.F. (1978), *Lean Limit Combustion in an Expanding Chamber.* NTIS Report CONF780863.
- Chin, W.K. and Sawyer, R.F. (1978), Combustion of Solvent Refined Coal in an Opposed Flow Diffusion Flame. NTIS Report LBL6897.

- Pitz, W.J. and Sawyer, R.F. (1978), *Inhibition Effects on Extinction of Polymer Burning*. NTIS Report LBL6898.
- Pitz, W.j., and Sawyer, R.F. (1977), Deflection Mapping in the Study of Polymer Buring. NTIS Report.
- Matthews, R.D. and Sawyer, R.F. (1977), *Fuel Nitrogen Conversion and Catalytic Combustion*. NTIS Report LBL6396.
- Smith, O.I., Westbrook, C.K., and Sawyer, R.F. (1977), *Bulk Quenching of Hydrocarbon* Oxidation in an Expanding Combustion Chamber. NTIS Report CONF7705611.
- Brown, N.J. and Sawyer, R.F. (1977), *Combustion Sources of Nitrogen Compounds*. NTIS Report LBL9543.
- Chin, W.K. and Sawyer, R.F. (1977), *Combustion of Coal in an Opposed Flow Diffusion Burner*. NTIS ReportLBL6339.
- Schefer, R.W. and Sawyer. R.F. (1976), *Pollutant Formation in Fuel Lean Re-circulating Flows*. Washington, DC: NASA, 1976.
- Sawyer, R.F., Brown, N.J., Matthews, R.D., Branch, M.C., Banna, S.M. (1976), *The Formation of* Nitrogen Oxides from Fuel Nitrogen. NTIS Report PB2524627.
- Sawyer, R.F. (1976), Non-equilibrium Combustion. NTIS Report UCBME764.
- Smith, O.I, and Sawyer, R.F. (1976), The Thermal Oxidation of Methylamine. NTIS Report UCBME763
- Sawyer, R.F. (1976), *The Formation of Nitrogen Oxides from Fuel Nitrogen: Final Report*. Palo Alto, CA: The Institute.
- Smith, O.I. and Sawyer, R.F. (1975), Automotive Engine Combustion with Excess Air. NTIS Report USBME7511.
- Holve, D.J. and Sawyer, R.F. (1975), Polymer Flame Retardant Mechanisms. NTIS Report ME752
- Sawyer, R.F., Cernansky, N.P., Oppenheim, A.K. (1974), Factors Controlling Pollutant Emissions from Gas Turbine Engines. NTIS Report AFOSRTR740192
- Cernansky, N.P. and Sawyer, R.F. (1974), NO and NO2 Formation in a Turbulent Hydrocarbon/Air Diffusion Flame. NTIS Report NSFRAN75212.
- Austin, A.L. and Sawyer, R.F. (1974), *The Hydrogen Fuel Economy and Aircraft Propulsion*. NTIS Report AFOSRTR740274.
- Sawyer, R.F. (1973), *The Chemistry of Burning*. Berkeley, CA: University of California, Dept. of Mechanical Engineering.
- Schefer, R.W., Matthews, R.D., Cernansky, N.P., Sawyer, R.F. (1973), *Measurement of NO and NO2 in Combustion Systems*. NTIS Report AFOSRTR740139.
- Branch, M.C. and Sawyer, R.F. (1973), *Ammonia Oxidation in an Arc-Heated Flow Reactor*. NTIS Report AFOSRTR740212.

- Sawyer, R.F. (1972), Non-equilibrium Combustion Products for Calculating Rocket Engine Performance. NTIS Report AFOSRTR740212. SL TA 160.4 C32 no. ME-72-11
- Sawyer, R.F. and Scalapino, D.J. (1972), *Pion Condensation in Superdense Nuclear Matter*. NTIS Report AF)SRTR731097.
- Sawyer, Robert F. (1972), *Atmospheric Pollution by Air-craft Engines and Fuels: A Survey*. Neuilly-sur-Seine, France: NATO, Advisory Group for Aerospace Research and Development. Advisory Report #40. NTIS Report AGARDAR40.
- Laurendeau, N.M. and Sawyer, R.F. (1972), General Solution of Reaction Rate Problems via Combined Integration and Steady State Analysis: Application to Nitric Oxide Formation and Decomposition. NTIS Report AFOSRTR720230.
- Branch, M.C. and Sawyer, R.F. (1971), *Review and Evaluation of Rate data for Gas Phase Reactions of the N-H System.* NTIS Report AFOSRTR720200.
- Fristom, R.M. and Sawyer, R.F.(1971), Flame Inhibition Chemistry. [Silver Spring, MD]: The Authors.
- Laurendeau, N.M. and Sawyer, R.F. (1970), *General Reaction Rate Problems: Combined Integration and Steady State Analysis.* NTIS Report AFOSRTR720201.
- Glassman, Irving and Sawyer, R.F., (1970), *The Performance of Chemical Propellants*. Slough, England: Technivision Services. AGARDographno Series, #129. Prepared for NATO.
- Purgalis, P. and Sawyer, R.F. (1968), *General Formulation and Numerical Solution of Reaction Rate Problems.* NTIS ReportAFOSR681624.
- Sawyer, R.F., Purgalis, P., McMullen, E.T. (1968), *The Reaction of Hydrazine and Chlorine Pentafluoride in a Laboratory Rocket Combustor*. NTIS Report AFOSR681294.
- Sawyer, R.F. (1967), Mass Spectroscopic Observation of Ignition Phenomena in a Small Rocket Combustion Chamber. NTIS Report AFOSR680225.
- Sawyer, R.F.(1967), Theoretical Effect of Non-equilibrium Combustion of Hydrazine/Nitrogen Tetroxide Propellant Performance. NTIS Report AFOSR681290.
- Sawyer, R.F. (1967), *The Effect of Non-equilibrium Combustion on Propellant Performance*. NTIS Report AFOSR672004.
- Purgalis, P. and Sawyer, R.F. (1967), A General Formulation and Solution of Chemical Rate Equations for Use in Non-equilibrium Combustion Studies. NTIS Report AFOSR672021.
- Sawyer, R.F. (1965), The Homogeneous Gas Phase Kinetics of Reactions in the Hydrazine-Nitrogen Tetroxide Propellant System. NTIS Report AFOSR660855.

Conference Papers, Proceedings & Symposia

- Clack, H.L., Koshland, C.P., Lucas, D., Sawyer, R.F., (2000), "On the vaporization of thermal oxidation of chlorinated hydrocarbon/alcohol sprays," *Proceedings of the Combustion Institute*, 28, 2683-2689.
- Clack, H.L. Koshland, C.P., Lucas, D., and Sawyer, R.F. (2000), "Development of an airblast atomizer for independent control of droplet size and spray density." *Twenty-Seventh Symposium (International) on Combustion*.
- Sawyer, R.F. (1968), *Specialists' Session on Chemical Kinetics Calculations*. Berkeley, CA: Western States Section, Combustion Institute.

Dissertation

The Homogeneous Gas Phase Kinetics of Reactions in the Hydrazine: Nitrogen Tetroxide Propellant System. Princeton University, 1966.

Public Addresses

"From Science to Regulation." Chair's Air Pollution Seminar Series, California Air Resources Board, Sacramento, CA. November 1, 2006. <u>http://www.arb.ca.gov/research/seminars/sawyer/sawyer.htm</u>

Honors & Awards

National Academy of Engineers, Elected Member, February 2008.

Soichiro Honda Medal, American Society of Mechanical Engineers, 2003 http://www.asme.org/Governance/Honors/SocietyAwards/Soichiro_Honda_Medal.cfm

Berkeley Citation, University of California, Berkeley (for service to the University), 1999 <u>http://awards.berkeley.edu/berkeleyCitation.cfm</u>

Named, First Class of 1935 Professor of Energy, University of California, Berkeley, 1988.

Fellow, Society of Automotive Engineers (SAE)

Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA)

Past Chair of the Horning Award Committee, Teetor Award, Society of Automotive Engineers (SAE)

Academic & Professional Service

Professor, University of California, Berkeley - 1966-2006

Director, Study Center London, Bloomsbury, University of California Education Abroad Program, 2003-2005

Senior Faculty Scientist, Lawrence Berkeley Laboratory, 1972-1991

Member of the Research Staff, Guggenheim Aerospace Propulsion Laboratories, Department of Aerospace Sciences, Princeton University, 1965-1966

Instructor of Physics and Mathematics, Antelope Valley College, Lancaster, CA, 1959-1961

Visiting Appointments

Imperial College London, Visiting Professor of Energy and Environment, 1995 Honorary Research Fellow, University College London, 1991 Visiting Scientist, Sandia National Laboratory Combustion Research Facility, 1988-1989 Imperial College, London, 1978-1979 Hokkaido University, 1984 Toyohashi University of Technology, 1984 Johns Hopkins University Applied Physics Laboratory, 1971

Rocket Test Engineer, Rocket Propulsion Research Engineer and Chief of the Liquid Systems Analysis Section, U.S. Air Force Rocket Propulsion Laboratory, Edwards AFB, CA, 1958-1961

Public Service & Professional Leadership

- California Air Resources Board, Chair, 2006-2007; Member, International Diesel Retrofit Advisory Committee, 2001-2005; previous service as Automotive Engineer Member in 1975-1976 – see <u>http://www.arb.ca.gov</u>
- International Combustion Institute, President, 1992-1996 and currently Honorary Member of the Executive Board 2008-2010, see http://www.combustioninstitute.org
- Bay Area Air Quality Management District Advisory Council, Chair & Member, 1994-2003; see <u>http://www.baaqmd.gov/</u>

Review Coordinator, National Research Council, 2003

- Health Effects Institute Special Committee on Emerging Technologies, Chair, 2001-2004
- Committee on Congestion Mitigation and Air Quality, National Research Council, Member, 2000-2003

Committee on the USEPA MOBILE Model, National Research Council, Member, 1999-2000

US Environmental Protection Agency Clean Air Act Scientific Advisory Committee on Diesel Toxicity, Advisor, 1999-2000

National Research Council, Panel on MOBILE Model, 1998-2000

- US Environmental Protection Agency Blue Ribbon Panel on Methyl Tertiary Butyl Ether, Member, 1998-2000
- US Environmental Protection Agency, Mobile Sources Technical Advisory Sub-committee, Chair, 1995-2003
- US Environmental Protection Agency, Clean Air Act Advisory Committee, Technical Advisory Sub-Committee on Mobile Sources, Co-Chair, 1995-2003.
- National Research Council, Associateship Program Committee, 1995-1999
- Sandia Combustion Research Facility, Advisory Committee, 1995-1997
- South Coast Air Quality Management District, Technical Advancement Office, External Review Committee, 1995-1997
- US Environmental Protection Agency, Office of Air and Radiation, Senior Policy Advisor, 1994-1995.
- Health Effects Institute, Research Committee, 1993-2001; 1981-1990
- Center for Emissions Research and Analysis, Board of Directors, 1991-1994
- External Advisory Panel to the World Bank, Mexico City Transport Air Quality Management Program 1990-1998
- Distinguished Advisory Panel to the Joint Auto/Oil Air Quality Improvement Research Program, 1989-1996
- US Environmental Protection Agency, Clean Diesel Independent Review Panel
- Advisory Committee to the College of Engineering Center for Environmental Research and Technology, University of California, Riverside
- Advisory Committee to the Institute of Transportation Studies, University of California, Davis
- National Research Council Committee on Army Basic Research, 1987-1988
- National Academy of Sciences Committee on Diesel Engine Technology, 1979-1982, Chair
- State of California ad hoc Committee on Atmospheric Carcinogens, 1978-1979, Chair
- KVB Enertec, Inc., 1976-1978, Board of Directors
- President's Council on Environmental Quality Advisory Committee on Alternative Automotive Power Systems, 1971-1976
- Technology Panel of the National Academy of Sciences Committee on Motor Vehicle Emissions, 1973-1974, Head

About Robert F. Sawyer

Partner in Sawyer Associates, a consulting firm specializing in air pollution reduction in Oakland, California, 1980+

Registered Professional Engineer (Mechanical Engineering and Fire Protection Engineering in California)

Citations in Biographical Sources:

American Men and Women of Science Who's Who in Technology Who's Who in Engineering Who's Who in Science and Engineering Who's Who in the West

Member, American Association of University Professors – <u>http://www.aaup.org</u> Member, Sigma Xi, Scientific Research Organization – <u>http://www.sigmaxi.org</u> Member, Pi Tau Sigma, International Mechanical Engineering Honor Society -<u>http://www.pitausigma.org/</u>