PAUL D. RONNEY

RESEARCH INTERESTS

Combustion, micro-scale power generation and propulsion, biophysics, turbulence, internal combustion engines and control systems, low-gravity phenomena, radiative transfer.

PROFESSIONAL EXPERIENCE

6/00 - present: Professor, Department of Aerospace and Mechanical Engineering, University of Southern California, Los Angeles, CA. Associate Chair 8/2015 – 8/2017; Chair 7/2020 - present.

2/96 - 12/97: Payload Specialist Astronaut (Alternate) - trained for Spacelab mission MSL-1, (launched as STS-83 4/4/97 - 4/8/97, re-flew as STS-94 on 7/1/97 - 7/16/97) to conduct combustion, fluids, and materials science experiments. Served as crew communicator for experiment operations during both missions.

9/94 - 5/00: Associate Professor, Department of Aerospace and Mechanical Engineering, University of Southern California, Los Angeles, CA

9/93 - 8/94: Research Associate Professor, Department of Mechanical Engineering, University of Southern California, Los Angeles, CA

8/86 - 8/93: Assistant Professor, Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, NJ.

11/85 - 4/86: Research Associate, Chemistry Division, U.S. Naval Research Laboratory, Washington, D.C.

9/83 - 10/85: National Research Council Resident Research Associate, NASA Lewis (Glenn) Research Center, Cleveland, OH.

8/78 - 9/79: Systems Integration Engineer, Ford Aerospace & Comm. Corp., Newport Beach, CA.

HONORS , AWARDS, PROFESSIONAL ACTIVITIES

Fellow, American Association for the Advancement of Science (2026)

Distinguished Engineering Educator Achievement Award, The Engineers' Council (2022)

Senior Member, National Academy of Inventors (2022)

Fellow, Combustion Institute (2018)

Fellow, American Society of Mechanical Engineers (2013)

Associate Fellow, American Institute of Aeronautics and Astronautics (2013)

Distinguished Paper Award, Laminar Flames Colloquium, 37th International Symposium on Combustion, Dublin, Ireland, August 2018.

Associate Editor, *Combustion Theory and Modelling* (1997 – present)

Member of editorial boards: *Energies* (2014 – present); *Micromachines* (2009 – 2025)*;* Progress *in Energy and Combustion Science* (2002 – 2015)*, Microgravity Science and Technology* (2001 – 2009); *Combustion and Flame* (2001 – 2007)

Conference Co-Organizer, 11th U.S. National Combustion Meeting, Pasadena, CA, March 24 - 27, 2019.

Program Co-Chair, 33rd International Symposium on Combustion, Beijing, China, August 2010

First-ever recipient of the Bernard Lewis Lectureship of the Combustion Institute, 2005.

Principal Investigator for Structure Of Flame Balls At Low Lewis-number (SOFBALL) space flight experiment on STS-83 (April 4-8, 1997), STS-94 (July 1-16, 1997) and STS-107 (January 16 – February 1, 2003) Space Shuttle missions.

Co-chair, colloquium on "New Concepts in Combustion Technology," 29th and 30th International Symposium on Combustion, 2002 and 2004.

Institution of Mechanical Engineers (U.K.) Starley Premium Award, 1994 (for the best paper published in the Journal of Automobile Engineering, 1994).

Princeton Engineer's Council Excellence in Teaching Award, 1990.
National Science Foundation Presidential Young Investigator, 1987 - 1992

EDUCATION

9/79 - 3/83 Massachusetts Institute of Technology, Cambridge, MA
Sc.D. in Aeronautics and Astronautics, March 1983; DuPont Fellowship, Upham Fellowship
9/78 - 6/79 California Institute of Technology, Pasadena, CA
M.S. in Aeronautics, June 1979; Guggenheim Fellowship
9/77 - 6/78 University of California, Berkeley, CA
B.S. in Mechanical Engineering, June 1978; Tau Beta Pi, Pi Tau Sigma, Phi Beta Kappa, Dean's List
9/74 - 6/77 University of California, Irvine, CA, Mechanical Engineering major

PUBLICATIONS

Web of Science: http://www.researcherid.com/rid/B-4007-2009

Google Scholar: https://scholar.google.com/citations?user=IvoIYhoAAAAJ&hl=en

Book Chapters (7)

Ronney, P. D., "Heat-Recirculating Combustors," Chapter 10 in *Microscale Combustion and Power Generation* (Y. Ju, C. Cadou and K. Maruta, Eds.), Momentum Press LLC, New York, 2015, pp. 287-320.

Ronney, P. D., "Combustion Phenomena at Microgravity," Chapter 12 in: *Physics of Fluids in Microgravity* (R. Monti, Ed.), Gordon and Breach, Reading, U.K., 2002, pp. 371-431.

Ronney, P. D., "Premixed-Gas Flames," in: *Microgravity Combustion: Fires in Free Fall* (H. Ross, Ed.), Academic Press, London, U.K., 2001, pp. 35-82.

Ronney, P. D., "Combustion Experiments on Spacelab Mission MSL-1," *Advances in the Astronautical Sciences*, Vol. 91, pp. 397-407, 1996.

Ronney, P. D., "Some Open Issues in Premixed Turbulent Combustion," in: Modeling in Combustion Science (J. D. Buckmaster and T. Takeno, Eds.), Lecture Notes In Physics, Vol. 449, Springer-Verlag, Berlin, 1995, pp. 3-22.

Ronney, P. D., Yakhot, V., "Flame Broadening Effects on Premixed Turbulent Flame Speed," in: Turbulent Premixed Flames: A State of the Art (I. Gokalp and M. Champion, eds.), Presses Du CNRS, Paris, France, 1992.

Buckmaster, J. D., Lee, C. J., Joulin, G., Ronney, P. D., "Modelling of Microgravity Ignition Experiments," in: Recent Advances in Combustion Modelling (B. Larrouturou, ed.), Series in Advances in Mathematics for Applied Sciences, Vol. 6, pp. 1-18, World Scientific Press, Teaneck, NJ, 1991. (DOI: 10.1142/9789814293778_0001)

Refereed Journal Publications (87) (undergraduate students underlined)

Bhuripanyo, P., Ronney, P. D., "Hydrogen production from hydrocarbon and ammonia fuels through heat-recirculating 'Swiss-roll' reformers," *Fuel*, Vol. 409, 137819 (2026). (DOI: 10.1016/j.fuel.2025.137819).

Kong, E., Maimani, F., Prakash, G. K. S., Ronney, P. D., "Dynamics of direct hydrocarbon polymer electrolyte membrane fuel cells," *Scientific Reports* 14:17865 (2024). (DOI: 10.1038/s41598-024-68832-7)

Dejoan, A, Zhou, Z., Fernandez-Galisteo, D., Ronney, P. D., Kurdyumov, V. N., "Effect of confinement on the propagation patterns of lean hydrogen-air flames," *Proceedings of the Combustion Institute,* Vol. 40, 105431 (2024). (DOI: 10.1016/j.proci.2024.105431)

Xin, J., Yu, Y., Ronney, P. D., "Lagrangian, Game Theoretic, and PDE Methods for Averaging G-equations in Turbulent Combustion: Existence and Beyond," *Bulletin of the American Mathematical Society*, Vol. 60, pp. 470 – 514 (2024). (DOI: 10.1090/bull/1838)

Wei, H., Hutchins, D. A., Ronney, P. D., Pahlevan, N. M., "Fluid-based microbial processes modeling in Trichodesmium colony formation," *Physics of Fluids* 35, 101902 (2023) (DOI: 10.1063/5.0165872)

Zhou, Z., Weiss, J. T., Ronney, P. D., "Propagation and extinction of premixed H_2-O_2-N_2 edge-flames," *Combustion and Flame*, Vol. 258, 113076 (2023). (DOI: https://doi.org/10.1016/j.combustflame.2023.113076)

Al-Malki, F., Ronney, P. D., "The combined effects of chemical reaction order and stoichiometry on nonpremixed edge flames," *Combustion Theory and Modelling*, Vol. 27, pp. 1195 - 1210 (2021) (DOI: 10.1080/13647830.2021.1956595)

Rhodes, B. L., DeSain, J. D., Ronney, P. D., "Reaction of Hydrogen Peroxide Vapor on Platinum on Alumina Spheres," *Applied Catalysis A, General* 608 117824 (2020). (DOI: 10.1016/j.apcata.2020.117824)

Rhodes, B. L., Ronney, P. D., "Dynamics of a Small-Scale Hydrogen Peroxide Vapor Propulsion System," *AIAA Journal of Propulsion and Power*, Vol. 35, pp. 595 - 600 (2019). (DOI: 10.2514/1.B37323)

Zhou, Z., Applebaum, S. S., Ronney, P. D., "Effect of Stoichiometric Mixture Fraction on Nonpremixed H_2-O_2-N_2 Edge-flames" *Proceedings of the Combustion Institute*, Vol. 37, pp. 1989 - 1996 (2019). (DOI: 10.1016/j.proci.2018.05.010). **(This publication received the Distinguished Paper Award for the best paper (out of >100 submissions) in the Laminar Flames Colloquium, 37th International Symposium on Combustion, Dublin, Ireland, August 2018.)**

Clayton, D. B., Cha, M. S., Ronney, P. D., "Propagation and Extinction of Premixed Edge-Flames *Proceedings of the Combustion Institute*, Vol. 37, pp. 1823 - 1830 (2019). (DOI: 10.1016/j.proci.2018.06.075)

Fernández-Galisteo, D., Kurdyumov, V. N., Ronney, P. D., "Analysis of premixed flame propagation between two closely spaced parallel plates," *Combustion and Flame* Vol. 190 pp. 133 - 145 (2018). (DOI: 10.1016/j.combustflame.2017.11.022).

Rhodes, B. L., Ronney, P. D., DeSain, J. D., "Hydrogen Peroxide Vapor Absorption Cross Section: A Flow Cell Study Using Laser Absorption in the Near Infrared," *Chemical Physics Letters*, Vol. 692, pp. 359-363 (2018) (DOI: 10.1016/j.cplett.2017.12.053).

Davani, A. A., Ronney, P. D., "A jet-stirred apparatus for turbulent combustion experiments," *Combustion and Flame*, Vol. 185, pp. 117 - 128 (2017). (DOI: 10.1016/j.combustflame.2017.07.009).

Song, H., Wang, P., Boles, R. S., Matinyan, D., Prahanphap, H., Piotrowicz, J., Ronney, P. D., "Effects of Mixture Fraction on Edge-flame Propagation Speeds," *Proceedings of the Combustion Institute,* Vol. 36, pp. 1403 - 1409 (2017). (DOI: 10.1016/j.proci.2016.07.042).

Wang, K., Zeng, P., Ahn, J., Ronney, P. D., "Thermal Transpiration Based Pumping and Power Generation Devices," *Journal of Thermal Science and Technology*, Vol. 8, No. 2, pp. 370-379 (2013). (DOI: 10.1299/jtst.8.370)

Chen, C.-H., Ronney, P. D., "Scale and geometry effects on heat-recirculating combustors," *Combustion Theory and Modelling*, Vol. 17, pp. 888-905 (2013) (DOI: 10.1080/13647830.2013.812807)

Zeng, P., Wang, K., Ahn, J., Ronney, P. D., "A self-sustaining thermal transpiration gas pump and SOFC power generation system," *Proceedings of the Combustion Institute*, Vol. 34, pp. 3327 - 3334 (2013). (DOI: 10.1016/j.proci.2012.06.168)

Chen, C.-H., Ronney, P. D., "Three-dimensional Effects in Counterflow Heat-Recirculating Combustors," *Proceedings of the Combustion Institute*, Vol. 33, pp. 3285-3291 (2011). (DOI: 10.1016/j.proci.2010.06.081)

Ahn, J., Shao, Z., Ronney, P. D., Haile, S., "A Thermally Self-Sustaining Miniature Solid Oxide Fuel Cell," *Journal of Fuel Cell Science and Technology*, Nov. 2009. (DOI: 10.1115/1.3081425)

Daou, J., Al-Malki, F., Ronney, P. D., "Generalised Flame Balls," *Combustion Theory and Modelling* Vol. 13, pp.

269 – 294 (2009). (DOI: 10.1080/13647830802596447).

Cho, J.-H., Lee, J., Lin, J., Sanford, L. N., Richards, C. D., Richards, R. F., Ahn, J., Ronney, P. D., "Demonstration of an external combustion micro-heat engine," *Proceedings of the Combustion Institute,* Vol. 32, pp. 3099-3105 (2009). (DOI: 10.1016/j.proci.2008.07.017)

Kuo, C.-H., Ronney, P. D., "Numerical Modeling of Heat Recirculating Combustors," *Proceedings of the Combustion Institute,* Vol. 31, pp. 3277-3284 (2007). (DOI: 10.1016/j.proci.2006.08.082)

Son, Y., Zouein, G., Ronney, P. D., Gokoglu, S. "Comparison of Carbon Dioxide and Helium as Fire Extinguishing Agents for Spacecraft" *Journal of ASTM International*, Vol. 3, No. 3, (2006). (DOI: 10.1520/JAI13564)

Cha, M. S., Ronney, P. D., "Propagation rates of non-premixed edge-flames," *Combustion and Flame*, Vol. 146, pp. 312 – 328 (2006). (DOI: 10.1016/j.combustflame.2006.02.010)

Shao, Z., Haile, S., Ahn, J., Ronney, P. D., Zhan, Z., Barnett, S. A., "A thermally self-sustained micro Solid-Oxide Fuel Cell with high power density," *Nature*, Vol. 435, pp. 795 – 798 (2005). (DOI: 10.1038/nature03673)

Wang, F., Liu, J. B., Sinibaldi, J., Brophy, C., Kuthi, A., Jiang, C., Ronney, P. D., Gundersen, M. A., "Transient Plasma Ignition of Quiescent and Flowing Fuel Mixtures," *IEEE Transactions on Plasma Science*, Vol. 33, pp. 844 – 849 (2005). (DOI: 10.1109/TPS.2005.845251)

Liu, J. B., Wang, F., Li, G., Kuthi, A., Gutmark, E. J., Ronney, P. D., Gundersen, M. A., "Transient plasma ignition," *IEEE Transactions on Plasma Science*, Vol. 33, pp. 326-327 (2005). (DOI: 10.1109/TPS.2005.845906)

Ahn, J., Eastwood, C., Sitzki, L., Ronney, P. D., "Gas-phase and catalytic combustion in heat-recirculating burners," *Proceedings of the Combustion Institute,* Vol. 30, pp. 2463-2472 (2005). (DOI: 10.1016/j.proci.2004.08.265)

Ronney, P. D., "Analysis of non-adiabatic heat-recirculating combustors," *Combustion and Flame*, Vol. 135, pp. 421-439 (2003). (DOI: 10.1016/j.combustflame.2003.07.003).

Maruta, K., Takeda, K., Ahn, J., Borer, K., Sitzki, L, Ronney, P. D., Deutschman, O., "Extinction Limits of Catalytic Combustion in Microchannels," *Proceedings of the Combustion Institute*, Vol. 29, pp. 957-963 (2002). (DOI: 10.1016/S1540-7489(02)80121-3).

Son, Y., Ronney, P. D., "Radiation-Driven Flame Spread Over Thermally-Thick Fuels in Quiescent Microgravity Environments," *Proceedings of the Combustion Institute*, Vol. 29, pp. 2587-2594 (2002). (DOI: 10.1016/S1540-7489(02)80315-7).

Weinberg, F. J., Rowe, D. M., Min, G., Ronney, P. D., "On thermoelectric power conversion from heat re-circulating combustion systems," *Proceedings of the Combustion Institute*, Vol. 29, pp. 941-947 (2002). (DOI: 10.1016/S1540-7489(02)80119-5).

Kagan, L., Sivashinsky, G. I., Ronney, P. D., "Activation Energy Effect on Flame Propagation in Large-Scale Vortical Flows," *Combustion Theory and Modelling*, Vol 6, pp. 479-485 (2002). (DOI: 10.1088/1364-7830/6/3/306).

Ji, C., Ronney, P. D., "Modeling of Engine Cyclic Variation by a Thermodynamic Model" in: *Spark Ignition and Compression Ignition Engine Modeling* (SP-1720), Society of Automotive Engineers, 2002. Also *SAE Paper 2002-01-2736* (2002). (DOI: 10.4271/2002-01-2736).

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Nayagam, V., Balasubramaniam, R., and Ronney, P. D., "Diffusion Flame-Holes," *Combustion Theory and Modelling*, Vol. 3, pp. 727-742 (1999). (DOI: 10.1088/1364-7830/3/4/307). (DOI:

Liu, J.-B. and Ronney, P. D., "Premixed Edge-Flames in Spatially Varying Straining Flows," *Combustion Science and Technology*, Vol. 144, pp. 21-46 (1999). (DOI: 10.1080/00102209908924196).

Ronney, P. D., "Flame Structure Modification and Quenching By Turbulence," *Combustion Science and Technology* (Japanese edition), Vol. 6 (Supplement), pp. 53-76 (1999).

Wu, M. S., Ronney, P. D., Colantonio, R. and VanZandt, D., "Detailed Numerical Simulation of Flame Ball Structure and Dynamics," *Combustion and Flame*, Vol. 116, pp. 387-397 (1999). (DOI: 10.1016/S0010-2180(97)00356-8).

Abid, M., Wu, M. S., Liu, J. B., Ronney, P. D., Ueki, M., K. Maruta, K., Kobayashi, H., Niioka, T. and VanZandt, D. M., "Experimental and Numerical Study of Flame Ball IR and UV Emissions," *Combustion and Flame*, Vol. 116, pp. 348-359 (1999). (DOI: 10.1016/S0010-2180(98)00103-5).

Ronney, P. D., "A Perspective on the Role of Microgravity in Combustion Research," *Combustion and Flame*, Vol. 116, pp. 317-318 (1999) (invited contribution).

Vedarajan, T. G., Buckmaster, J. D. and Ronney, P. D., "Two-dimensional Failure Waves and Ignition Fronts in Premixed Combustion," *Twenty-Seventh International Symposium on Combustion*, Combustion Institute, Pittsburgh, 1998, pp. 537-544.

Wu, M.-S., Liu, J. B. and Ronney, P. D., "Numerical Simulation of Diluent Effects on Flame Ball Structure and Dynamics," *Twenty-Seventh International Symposium on Combustion*, Combustion Institute, Pittsburgh, 1998, pp. 2543-2550.

Ju, Y., Masuya, G. and Ronney, P. D., "Effects of Radiative Emission and Absorption on the Propagation and Extinction of Premixed Gas Flames" *Twenty-Seventh International Symposium on Combustion*, Combustion Institute, Pittsburgh, 1998, pp. 2619-2626.

Buckmaster, J. D. and Ronney, P. D., "Flame Ball Drift in the Presence of a Total Diffusive Heat Flux," *Twenty-Seventh International Symposium on Combustion*, Combustion Institute, Pittsburgh, 1998, pp. 2603-2610.

Ronney, P. D., "Understanding Combustion Processes Through Microgravity Research," *Twenty-Seventh International Symposium on Combustion*, Combustion Institute, Pittsburgh, 1998, pp. 2485-2506 (**invited paper).**

Ronney, P. D., Wu, M. S., Pearlman, H. G. and Weiland, K. J., "Experimental Study of Flame Balls in Space: Preliminary Results from STS-83," *AIAA Journal*, Vol. 36, pp. 1361-1368 (1998).

Ronney, P. D., "Premixed Laminar and Turbulent Flames at Microgravity," *Space Forum*, Vol. 4, pp. 49-98 (1998).

Aldredge, R. C., Vaezi, V. and Ronney, P. D., "Premixed-Gas Flame Propagation in Turbulent Taylor-Couette Flow," *Combustion and Flame*, Vol. 115, pp. 395-405 (1998). (DOI: 10.1016/S0010-2180(98)00008-X).

Honda, L. K. and Ronney, P. D., "Effects of Ambient Atmosphere on Flame Spread at Microgravity," *Combustion Science and Technology*, Vol. 133, pp. 267-291 (1998).

Shay, M. L. and Ronney, P. D., "Nonpremixed Flames in Spatially-Varying Straining Flows," *Combustion and Flame*, Vol. 112, pp. 171-180 (1998).

Liu, J. B., Ronney, P. D., "Modified Fourier Transform Method for Interferogram Fringe Pattern Analysis," *Applied Optics*, Vol. 36, pp. 6231 – 6241 (1997).

Kim, J. S., Williams, F. A., Ronney, P. D., "Diffusional-Thermal Instability of Diffusion Flames," *Journal of Fluid Mechanics*, Vol. 327, pp. 273-302 (1996).

Lim, E. H., McIlroy, A., Ronney, P. D., Syage, J. A., "Detailed Characterization of Minimum Ignition Energies of Combustible Gases Using Laser Ignition Sources," in: Transport Phenomena in Combustion (S. H. Chan, Ed.), Taylor and Francis, 1996, pp. 176-184.

Shy, S. S., Jang, R. H., Ronney, P. D., "Laboratory Simulation of Flamelet and Distributed Models for Premixed Turbulent Combustion Using Aqueous Autocatalytic Reactions", Combustion Science and Technology, Vol. 113-114, pp. 329 – 340 (1996).

Haslam, B. D., Ronney, P. D., "Fractal Properties of Propagating Fronts in a Strongly Stirred Fluid," *Physics of Fluids*, Vol. 7, pp. 1931-1937 (1995).

Ronney, P. D., Haslam, B. D., Rhys, N. O., "Front Propagation Rates in Randomly Stirred Media," *Physical Review Letters*, Vol. 74, pp. 3804-3807 (1995).

Lempert, W. R., Magee, K., Ronney, P. D., Gee, K. R., Haugland, R. P., "Flow Tagging Velocimetry In Incompressible Flow Using Photo-Activated Nonintrusive Tracking Of Molecular Motion (PHANTOMM)," *Experiments in Fluids*, Vol. 18, pp. 249-257 (1995).

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Zhu, J. Y., Ronney, P. D., "Simulation of Front Propagation at Large Non-dimensional Flow Disturbance Intensities," *Combustion Science and Technology*, Vol. 100, pp. 183-201 (1994).

Pearlman, H. G., Ronney, P. D., "Near-Limit Behavior of High Lewis-Number Premixed Flames in Tubes at Normal and Low Gravity," *Physics of Fluids*, Vol. 6, pp. 4009-4018 (1994).

Pearlman, H. G., Ronney, P. D., "Self-Organized Spiral and Circular Waves in Premixed Gas Flames," *Journal of Chemical Physics*, Vol. 101, pp. 2632-2633 (1994).

Lozinski, D., Buckmaster, J. D., Ronney, P. D., "Absolute Flammability Limits and Flame Balls in Optically Thick Mixtures," *Combustion and Flame*, Vol. 97, pp. 301-316 (1994).

Ronney, P. D., Whaling, K. N., Abbud-Madrid, A., Gatto, J. L., Pisowicz, V. L., "Stationary Premixed Flames in Spherical and Cylindrical Geometries," *AIAA Journal*, Vol. 32, pp. 569-577 (1994).

Ronney, P. D., "Laser versus Conventional Ignition of Flames," *Optical Engineering,* Vol. 33, pp. 510-521 (1994).

Ronney, P. D., Shoda, M., Waida, S. T., Durbin, E. J., "Throttleless Premixed-Charge Engines: Concept and Experiment," *Journal of Automobile Engineering, (Proceedings of the Institution of Mechanical Engineers, Part D),* Vol. 208, pp. 13-24 (1994). **This paper received the 1994 Starley Premium Award from the Institution of Mechanical Engineers (U.K.), for the best paper published in the *Journal of Automobile Engineering* in 1994.**

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Greenberg, J. B., Ronney, P. D., "Analysis of Lewis Number Effects in Flame Spread," *International Journal of Heat and Mass Transfer*, Vol. 36, pp. 315-323 (1993).

Sloane, T. M., Ronney, P. D., "A Comparison of Ignition Phenomena Modelled with Detailed and Simplified Kinetics," *Combustion Science and Technology*, Vol. 88, pp. 1-13 (1993).

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Ronney, P. D., Shoda, M., Waida, S. T., Westbrook, C. K., Pitz, W. J., "Knock Characteristics of Liquid and Gaseous Fuels in Lean Mixtures," *Transactions of the Society of Automotive Engineers*, Vol. 100, Part 4, pp. 557-568 (1992). Also *SAE Paper No. 912311*, 1991.

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Zhang, Y., Ronney, P. D., Roegner, E., Greenberg, J. B., "Lewis Number Effects on Flame Spreading Over Thin Solid Fuels," *Combustion and Flame*, Vol. 90, pp. 71-83 (1992).

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Abbud-Madrid, A., Ronney, P. D., "Effects of Radiative and Diffusive Transport Processes on Premixed Flames Near Flammability Limits," *Twenty Third Symposium (International) on Combustion*, Combustion Institute, 1990, pp. 423-431.

Farmer, J. N., Ronney, P. D., "A Numerical Study of Unsteady Nonadiabatic Flames," *Combustion Science and Technology*, Vol. 73, pp. 555-574 (1990).

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Buckmaster, J. D., Joulin, G., Ronney, P. D., "Effects of Heat Loss on the Structure and Stability of Flame Balls," *Combustion and Flame*, Vol. 79, pp. 381-392 (1990).

Ronney, P.D., Sivashinsky, G.I., "A Theoretical Study of Propagation and Extinction of Nonsteady Spherical Flame Fronts," *SIAM Journal on Applied Mathematics*, Vol. 49, pp. 1029-1046 (1989).

Ronney, P.D., "On the Mechanisms of Flame Propagation Limits and Extinction Processes at Microgravity," *Twenty Second Symposium (International) on Combustion*, Combustion Institute, 1988, pp. 1615-1623.

Ronney, P.D., "Effect of Chemistry and Transport Properties on Near-Limit Flames at Microgravity," *Combustion Science and Technology*, Vol. 59, pp. 123-141 (1988).

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Patents (7)

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Hsu, Y., Sapir, I., Ronney, P. D., Snyder, G. J., "Micro-combustion power system with dual path counter-flow system," U. S. Patent No. 8,614,392, December 24, 2013.

Raphael, D., Ronney, P. D., "Detection and Suppression of Airway / Drape Fires During Surgical Procedures," U. S. Patent No. 8,505,533, August 13, 2013.

Haile, S., Ronney, P. D., Shao, Z., "Power generator and method for forming the same," U. S. Patent No. 7,247,402, July 24, 2007.

Cohen, A., Ronney, P. D., Frodis, U., Sitzki, L, Meiburg, E., Wussow, S., "Microcombustor and combustion-based thermoelectric microgenerator," U. S. Patent No. 6,951,456, Oct. 4, 2005 (continuation of patent No. 6,613,972).

Cohen, A., Ronney, P. D., Frodis, U., Sitzki, L, Meiburg, E., Wussow, S., "Microcombustor and combustion-based thermoelectric microgenerator," U. S. Patent No. 6,613,972, Sept. 2, 2003.

Durbin, E. J., Ronney, P. D., "Method and Apparatus For Force or Torque Control of a Combustion Engine," U.S. Patent No. 5,184,592, Feb. 9, 1993.

Invited Conference Presentations (43)

"Front Propagation in Confined Geometries: What Darrieus and Landau didn't tell you," Conference on Combustion and Flame Instabilities in Confined Geometries, Manchester, UK, July 17-18, 2024

"Combustion experiments in the era of data-driven modeling and generative AI," Fall Technical Meeting, Combustion Institute, Western States Section, California State University – Northridge, October 17, 2023.

"A New Jet-Stirred Reactor for Turbulent Combustion and Chemical Kinetics Experiments" 9th Fuel and Combustion Conference of Iran (virtual), Feb. 8, 2022.

"The Revolution in Commercial Space," commencement address to graduates of the Department of Aerospace Engineering, Indian Institute of Technology - Bombay, Mumbai, India, August 8, 2021.

"How to Become an Astronaut," AIAA Los Angeles - Las Vegas Special Event Commemorating Apollo 11 and Viking Mars Landing Anniversaries, July 17, 2021.

"A New Jet-Stirred Apparatus for Turbulent Flame and Chemical Kinetics Experiments," KAUST Research Conference on New Combustion Concepts, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia, March 6 - 8, 2017.

"Heat Recirculating Combustors: How Lean Can We Burn? And How Small?" 2016 International Workshop on Micro Power & Energy Systems, Guangzhou Institute of Energy Conversion, Guangzhou, China, October 29-30, 2016.

"Transient Plasma Ignition for Internal Combustion Engines," 23rd National Conference on IC Engines and Combustion, Dec. 13 - 16, 2013, Surat, India.

"Microscale Power Generation and Propulsion: It's not the same as big devices made smaller," AIAA Aerospace Sciences Meeting, Nashville, TN, January 11, 2012.

"Micropower generation using fuels: An environmentally friendly alternative to batteries for portable power," International Symposium on Green Technology, Kun-Shan University, Tainan, Taiwan, Nov. 5 – 6, 2009.

"Recent Developments in Micropower Generation Using Hydrocarbon Fuel," International Center of Excellence of Flow Dynamics, Sendai, Japan, Sept. 26 – 28, 2007.

"Recent Developments in Micropower Generation Using Hydrocarbon Fuels," 2nd ASME Energy Nanotechnology International Conference, Sept. 5 – 7, 2007, Santa Clara, CA

"Microscale Power Generation and Propulsion: It's not the same as big devices made smaller," Korea Institute of Machinery and Materials, June 5, 2007.

"Thermal transpiration in nanoporous materials: Prospects for micropower generation and propulsion," Chungnam National University Micro/Nano Mechatronics Workshop, Daejeon, Korea, June 7, 2007

"Hydrocarbon-fueled internal combustion engines: the worst form of vehicle propulsion, except for all the other forms," Alternative Futures for the Automobile, May 23-24, 2007, Los Angeles, CA.

"Turbulent combustion of lean hydrogen-air mixtures: what we need to know but still don't," NSF Workshop on Research Frontiers for Combustion in the Hydrogen Economy, Arlington, VA, March 9-10, 2006.

Bernard Lewis Lectureship of the Combustion Institute – presented 8 different invited 1-hour lectures to various educational and research institutions in Taiwan, Sept. 2005.

"Some innovative applications of combustion science and technology," Fall Technical Meeting, Combustion Institute, Western States Section, Oct. 17-18, 2005, Stanford, CA.

"Excess Enthalpy Combustion for Microscale Power Generation," *2nd Zeldovich Memorial International Conference on Combustion and Detonation*, Moscow, Russia, September 2004.

"Fuel-flexible single-chamber solid oxide fuel cells," *DARPA Workshop on Fuel-Flexible Sustainable Microscale Power Sources*, Vail, CO, September 2004.

"Swiss-roll thermal management systems," *DARPA workshop on Thermal Management for Micro- and Meso-power Systems*, Chicago, IL, May 2004.

"Thermal and Chemical Cells," *Electric Power in Vivo Workshop and Symposium*, Los Angeles, CA, February 2004.

"Effect of Gravity on Combustion Processes," *Congrès Français de Mécanique*, Nice, France, Sept. 1 – 4, 2003.

"Flame balls: Recent experimental and computational results," *Gordon Conference on Gravitational Effects in Physico-Chemical Systems*, July 27 – 31, 2003, New London, CT.

"Premixed-gas flames at microgravity," *First International Symposium on Microgravity Research & Applications in Physical Sciences and Biotechnology*, Sorrento, Italy, September 10 – 14, 2000.

"Combustion research: from earth to outer space and back," *Environmental Molecular Sciences Symposia and First EMSL User Meeting*, Richland, Washington, July 21-24, 1999.

"Diffusive and hydrodynamic instabilities of flames," *Symposium on Chemical Waves, Fronts and Patterns*, Fall National Meeting , American Chemical Society, New Orleans, LA, Aug. 22-26, 1999.

"Understanding Combustion Processes Through Microgravity Research: Recent Advances and Future Challenges," *Gordon Conference on Gravitational Effects in Physico-Chemical Systems* , June 27 – July 2, 1999, Henniker, New Hampshire.

"Instabilities and Dynamics of Front Propagation in Narrow Channels," *Gordon Conference on Oscillations and Dynamic Instabilities in Chemical Systems,* June 6-11, 1999, Barga, Italy.

"Dynamics of Front Propagation in Narrow Channels," *Modeling of Reactive Fronts: At the Interface of Mathematics, Physics and Chemistry*, April 19 – 21, 1999, Lyon, France.

"Understanding Combustion Processes Through Microgravity Research," plenary lecture, 27th International Symposium on Combustion, Boulder, CO, August 2 – 7, 1998.

"Structure Modification and Quenching of Premixed Gas Flames by Turbulence," Japan Conference on Premixed Turbulent Combustion, Tokyo, Japan, November 17, 1997.

"Combustion Experiments in Space," 36th Israel Annual Conference on Aerospace Sciences, Tel-Aviv/Haifa, Israel, February 21-22, 1996.

"Combustion Experiments on Spacelab Mission MSL-1," 6th International Space Conference of Pacific Basin Societies, December 6-8, 1995, Marina del Rey, CA.

"Propagation and Extinction Mechanisms of Premixed Turbulent Flames," Joint U.S./Japan Workshop on Mathematical Modeling in Combustion and its Interaction with Numerical Computation, July 25 – 29, 1994, Kaapa, Hawaii.

"Laser versus Conventional Ignition of Flames," SPIE Symposium on Laser Applications in Combustion and Combustion Diagnostics, Jan. 16-23, 1992, Los Angeles, CA.

"Effects of Ambient Atmosphere on Flame Spreading and Extinction," Workshop on Spacecraft Fire Safety Risk Analysis Assessment, Oct. 31 – Nov. 1, 1991, Los Angeles, CA.

"New Premixed Gas Combustion Phenomena," Gordon Research Conference on Gravitational Effects in Physico-Chemical Systems, June 16-21, 1991, Plymouth, NH.

"Effects of Free and Forced Convection on Near-Limit Premixed Turbulent Flames," V. A. Michelson Conference on Combustion and Explosion, September 17-21, 1990, Moscow, USSR.

Ronney, P. D., "An Experimentalist's View of Combustion Theory," Tenth International Workshop on the Mathematics of Combustion, July 28-30, 1990, Poitiers, France.

"Throttleless Otto-Cycle Natural Gas Engines: Nox Emissions Characteristics," GRI Workshop on Nox Mechanisms in Natural-Gas Flames, July 18-20, 1990, Chateau d'Esclimont, France.

"Applications of Renormalization Group Analysis to Turbulent Combustion: Theoretical and Experimental Considerations," Tsukuba Workshop on Combustion, March 22-23, 1990, Tsukuba, Japan

Ronney, P. D., "Requirements for Temperature and Species Concentration Measurements in Microgravity Combustion Experiments," NASA Noncontact Temperature Measurement Workshop, April 30-May 1, 1987, Washington, D. C.; published in Proceedings of the Noncontact Temperature Measurement Workshop (M. C. Lee, ed.), NASA Conference Publication 2503, 1988, p. 129-138.

Other publications (2)

Ronney, P. D., "Throttleless Premixed-Charge Engines," in: *Global Automotive Manufacturing and Technology*, World Markets Research Centre Ltd., London, May 2001, pp. 64 – 68.

Ronney, P. D., "An Investigator's Suggestions for Effective Use of the NASA-JSC Reduced Gravity Program KC-135A Aircraft," in: JSC Reduced Gravity Program User's Guide, NASA JSC-22803, July 1991.

Technical presentations, conference proceedings

Fernandez-Galisteo, D., Dejoan, A., Palomeque-Santiago, R., Rubio-Rubio, M., Melguizo-Gavilanes, J., Sanchez-Sanz, M., Ronney, P. D., Kurdyumov, V. N., "Numerical studies of confinement effects on premixed-gas flame propagation," 20th International Conference on Numerical Combustion (ICNC 2025), Rome, Italy, Oct. 14 – 17, 2025.

Cohen, B. L., Zhou, Z., Ronney, P. D., "Physics-informed machine learning for reconstructing temperature, velocity, pressure, and species profiles from video data," 14th US National Combustion Meeting, Boston, MA, March 16 - 19, 2025.

Bhuripanyo, P., Ronney, P. D., "Hydrogen production from hydrocarbon and ammonia fuels through heat-recirculating 'Swiss-roll' reformers," 14th US National Combustion Meeting, Boston, MA, March 16 - 19, 2025.

Huang, S., Ronney, P. D., "Design and evaluation of 0-D plasma-assisted jet stirred chemical reactors: modeling and experiments," 14th US National Combustion Meeting, Boston, MA, March 16 - 19, 2025.

Wang, J.-Y., Davani, A., Ronney, P. D., "Computational and experimental evaluation of a new jet-stirred reactor for chemical kinetics studies," 14th US National Combustion Meeting, Boston, MA, March 16 - 19, 2025.

Wang, J.-Y., Davani, A., Ronney, P. D., "Computational and experimental evaluation of a new jet-stirred reactor for chemical kinetics studies," AIChE Annual Meeting, San Diego, CA, October 27- 31, 2024.

Dejoan, A, Zhou, Z., Fernandez-Galisteo, D., Ronney, P. D., Kurdyumov, V. N., "Effect of confinement on the propagation patterns of lean hydrogen-air flames," 19th International Conference on Numerical Combustion (ICNC 2024), Kyoto, Japan, May 7 - 11, 2024.

Cohen, B. L, Zhou, Z., Ronney, P. D., "Physics-Informed Neural Network simulations of premixed flames in counterflow, Bunsen, and Hele-Shaw configurations," Spring Technical Meeting, Combustion Institute, Western States Section, Salt Lake City, UT, March 4 - 5, 2024.

Huang, S., Weng, S., Medchill, C., Cronin, S. B., Ronney, P. D., "Effect of mixing characteristics on efficiency of pulse plasma-assisted fuel reforming," Fall Technical Meeting, Combustion Institute, Western States Section, Northridge, CA, October 16 - 17, 2023.

Zhou, Z., Cohen, B., Ronney, P. D., "Characteristics of H2-O2-N2 flame in quasi-2D channels: Propagation rates and scaling parameters," Fall Technical Meeting, Combustion Institute, Western States Section, Northridge, CA, October 16 - 17, 2023.

Wang, J.-Y., Ronney, P. D., A new jet-stirred reactor for turbulent combustion and chemical kinetics experiments," Fall Technical Meeting, Combustion Institute, Western States Section, Northridge, CA, October 6 - 17, 2023.

Radyjowski, P., Carlson, D., Bhuripanyo, P., Chen, C.-H., Ronney, P. D., "Swiss-roll Autothermal Ammonia Reformer for Gas Turbine Applications," AFRC 2023 Industrial Combustion Symposium, Denver, Colorado, September 25 – 27, 2023.

Adhikari, D., Bhuripanyo, P., Rao, P., Radyjowski, P., Chen, C.-H., Ronney, P. D., "Swiss-roll Combustor: An Innovative Enclosed Combustor for high Methane Destruction Efficiency and Ultra-low NOX Emissions," AFRC 2023 Industrial Combustion Symposium, Denver, Colorado, September 25 – 27, 2023.

Wang, J. Y., Ronney, P. D., "Computational and experimental evaluation of a new jet-stirred reactor for chemical kinetics studies," 15th International Symposium on Particle Image Velocimetry, San Diego, CA, June 19 – 21, 2023.

Radyjowski, P., Chen, C. H., Bhuripanyo, P., Ronney, P. D., "Swiss-roll Heat Recirculating Ammonia Reformer for Gas Turbine Applications," 13th U.S. National Combustion Meeting, College Station, TX, March 20 - 22, 2023.

Wang, J. Y., Ronney, P. D., "Computational and experimental evaluation of a new jet-stirred reactor for chemical kinetics studies," 13th U.S. National Combustion Meeting, College Station, TX, March 20 - 22, 2023.

Zhou, Z., Ronney, P. D., "Characteristics of H_2-O_2-N_2 flames in Quasi-2D Channels: Propagation Rates and Scaling Parameters," 13th U.S. National Combustion Meeting, College Station, TX, March 20 - 22, 2023.

Huang, S.-Y., Cronin, S., Ronney, P. D., "Dry methane and ammonia reforming via repetitive nanosecond pulsed plasma discharges: effect of reactor design," 13th U.S. National Combustion Meeting, College Station, TX, March 20 - 22, 2023.

Shi, Y., Whalen, J. J., Ronney, P. D., "Hydrocarbon ignition on high surface area Pt-electroplated wires," SIAM Conference on Numerical Combustion, La Jolla, CA, May 9 - 11, 2022.

Bhuripanyo, P., Ronney, P. D., "Numerical modeling of heat- recirculating combustors: Geometrical and chemical effects," SIAM Conference on Numerical Combustion, La Jolla, CA, May 9 - 11, 2022.

Shi, Y., Whalen, J. J., Ronney, P. D., "Hydrocarbon ignition on high surface area Pt-electroplated wires," Spring Technical Meeting, Combustion Institute, Western States Section, Stanford, CA, March 21-22, 2022.

Bhuripanyo, P., Ronney, P. D., "Numerical modeling of heat- recirculating combustors: Geometrical and chemical effects," Spring Technical Meeting, Combustion Institute, Western States Section, Stanford, CA, March 21-22, 2022.

Davani, A., Ronney, P. D., "Optimal design of nozzles for microsatellite propulsion, Paper No. AIAA -2021-0992, AIAA SciTech 2021 Forum (virtual), January 2021. (DOI: https://doi.org/10.2514/6.2021-0992).

Rhodes, B. L., Ronney, P. D., "Thermal Transpiration Applied to Small Satellite Propulsion," Paper No. AIAA-2020-3813, 2020 AIAA Propulsion & Energy Conference (virtual), August 25, 2020. (DOI: https://doi.org/10.2514/6.2020-3813)

Alexander R. Hartwell, A. R., Welles, T. S., Park, D., Ronney, P. D., Ahn, J., "Investigation of Mycelium Network as a Thermal Transpiration Membrane for Thermal Transpiration Based Pumping and Power Generation," *ASME Conference Proceedings*, POWER2020-16619, pp. V001T03A014, 2020. (DOI: 10.1115/POWER2020-16619.

Rhodes, B. L., Ulrich, E., Hsu, A., Ronney, P. D., "Thrust Measurement of a Hydrogen Peroxide Vapor Thruster," Paper No. AIAA-2020-3812, 2020 AIAA Propulsion & Energy Conference (virtual), August 25, 2020. (DOI: https://doi.org/10.2514/6.2020-3812)

Wongwiwat, J., Bhuripanyo, P., Welles, T. S., DeBiase, V. P., Ahn, J., Ronney, P. D., "Thermally self-sustaining tubular SOFC power generator with no moving parts," *J. Phys.: Conf. Ser.* Vol. 1407, 012007, 2019. (DOI 10.1088/1742-6596/1407/1/012007)

Carpio, J., Rajamanickam, P., Sánchez, A. L., Ronney, P. D., Williams, F. A., "Near-limit H_2-O_2-N_2 combustion in nonpremixed counterflow mixing layers," Fall Technical Meeting, Combustion Institute, Western States Section, Albuquerque, NM, October 14 - 15, 2019.

Al-Malki, F., Ronney, P. D., "The combined effects of chemical order and stoichiometry on nonpremixed edge-flames," Fall Technical Meeting, Combustion Institute, Western States Section, Albuquerque, NM, October 14 - 15, 2019.

Rhodes, B. L., Ulrich E., Ronney, P. D., "Small-Scale Hydrogen Peroxide Vapor Propulsion System: Catalyst Performance and Heat Transfer," Paper No. AIAA 2019-4029, AIAA Propulsion and Energy Forum and Exposition, Indianapolis, IN, August 19 - 22, 2019. (DOI: 10.2514/6.2019-4029)

Rhodes, B. L., Ronney, P. D., DeSain, J. D., "Heterogeneous catalysis of hydrogen peroxide vapor on platinum," 11th U.S. National Combustion Meeting, Pasadena, CA, March 24 - 27, 2019.

Zhou, Z., Narayanam, G. N., Weiss, J. T., Ronney, P. D., "Propagation and extinction of premixed H_2-O_2-N_2 edge-flames in a counter-flow burner" 11th U.S. National Combustion Meeting, Pasadena, CA, March 24 - 27, 2019.

Shi, Y., Whalen, J. J., Ronney, P. D., "Hydrocarbon ignition on high surface area Pt-electroplated wires," 11th U.S. National Combustion Meeting, Pasadena, CA, March 24 - 27, 2019.

Wongwiwat, J., Bhuripanyo, P., Welles, T. S., DeBiase, V. P., Ahn, J., Ronney, P. D., "Hydrocarbon-fueled portable power generator with no moving parts," 11th U.S. National Combustion Meeting, Pasadena, CA, March 24 - 27, 2019.

Shen, S., Wongwiwat, J., Ronney, P. D., "Characteristics of flames in quasi-2D channels: propagation rates and scaling parameters," 11th U.S. National Combustion Meeting, Pasadena, CA, March 24 - 27, 2019.

Davani, A., Zhou, Z., Ronney, P. D., "CFD Design of Jet-Stirred Reactors," 11th U.S. National Combustion Meeting, Pasadena, CA, March 24 - 27, 2019.

Shi, Y., Whalen, J., Ronney, P. D., "Hydrocarbon Ignition on High Surface Area Pt-Electroplated Wires," AIAA Paper No. 2019-2370, AIAA SciTech Forum, San Diego, CA, January 7 - 11, 2019.

Davani, A., Zhou, Z., Ronney, P. D., "CFD Design of Jet-Stirred Reactors," AIAA Paper No. 2019-2146, AIAA SciTech Forum, San Diego, CA, January 7 - 11, 2019. (DOI: https://doi.org/10.2514/6.2019-2146)

Shen, S., Wongwiwat, J., Ronney, P. D., "Flame Propagation in Quasi-2D Channels: Stability, Rates and Scaling," AIAA Paper No. 2019-2365, AIAA SciTech Forum, San Diego, CA, January 7 - 11, 2019.

Wongwiwat, J., Bhuripanyo, P., Ronney, P. D., "Hydrocarbon-Fueled Electrical Power Generator with no Moving Parts," AIAA Paper No. 2019-2372, AIAA SciTech Forum, San Diego, CA, January 7 - 11, 2019. (DOI: https://doi.org/10.2514/6.2019-2372).

Rhodes, B. L., Ronney, P. D., DeSain, J. D., "Catalytic Decomposition of Low Pressure Hydrogen Peroxide Vapor on Platinum and Silver: Kinetics and Implications," AIAA Paper No. 2019-1237, AIAA SciTech Forum, San Diego, CA, January 7 - 11, 2019.

Narayanam, G. N., Zhou, Z., Ronney, P. D., "Propagation and extinction of premixed H2-O2-N2 edge-flames in a counter-flow burner," AIAA Paper No. 2019-0457, AIAA SciTech Forum, San Diego, CA, January 7 - 11, 2019.

C. H. Chen, J. K. T. Crawmer, B. M. Richard, H. G. Pearlman, P. D. Ronney, "Development of a Non-Catalytic JP-8 Reformer," 2018 NDIA Ground Vehicle Systems Engineering and Technology Symposia, Novi, Michigan, August 7 - 9, 2018.

Rhodes, B., Ronney, P. D., "Design and Test of a Hydrogen Peroxide Vapor Thruster for Small Satellite Applications" AIAA Propulsion and Energy Conference, Cincinnati, OH, July 9 - 11, 2018. Also AIAA Paper No. 2018-4971.

E. Kong, P. D. Ronney, G. K. S. Prakash, "Dynamics of Direct Hydrocarbon PEM Fuel Cells" 233rd Electrochemical Society Meeting, Seattle, WA, May 13-17, 2018.

S. Shen, X. Ma, P. D. Ronney, "Flame Propagation in Quasi-2D Channels: Stability, Rates and Scaling," Spring Technical Meeting, Combustion Institute, Western States Section, Bend, OR, March 26 - 27, 2018.

Z. Zhou, S. Applebaum, P. D. Ronney, Effect of Stoichiometric Mixture Fraction on Nonpremixed H_2-O_2-N_2 Edge-flames", Spring Technical Meeting, Combustion Institute, Western States Section, Bend, OR, March 26 - 27, 2018.

A. A. Davani, P. D. Ronney, "A New Jet-Stirred Reactor for Chemical Kinetics Experiments," Spring Technical Meeting, Combustion Institute, Western States Section, Bend, OR, March 26 - 27, 2018.

J. Wongwiwat, P. Bhuripanyo, P. D. Ronney, "Hydrocarbon-Fueled Electrical Power Generator with no Moving Parts," Spring Technical Meeting, Combustion Institute, Western States Section, Bend, OR, March 26 - 27, 2018.

E. Kong, P. D. Ronney, G. K. S. Prakash, "Dynamics of Direct Hydrocarbon PEM Fuel Cells" 255th American Chemical Society National Meeting & Exposition, New Orleans, LA, March 18-22, 2018.

J. K. T. Crawmer, C. H. Chen, B. M. Richard, H. G. Pearlman, P. D. Ronney, "Swiss-roll JP-8 Fuel Reformer with Direct Center Fuel Injection and Mixing Chamber Design," Spring Technical Meeting, Combustion Institute, Eastern States Section, State College, PA, March 5 - 7, 2018.

J. K. T. Crawmer, C. H. Chen, B. M. Richard, H. G. Pearlman, P. D. Ronney, T. Edwards, "A 'Scale-Up' Swiss-roll Combustor and Its Application in Waste Gas Incineration," Spring Technical Meeting, Combustion Institute, Eastern States Section, State College, PA, March 5 - 7, 2018.

J. Wongwiwat, P. Bhuripanyo, T. S. Welles, V. DeBiase, J. Ahn, P. D. Ronney, "Thermal Transpiration Based Pumping and Power Generation", 15th International Conference on Flow Dynamics Proceedings, pp. 330-331 (2018).

J. K. T. Crawmer, C. H. Chen, B. M. Richard, H. G. Pearlman, T. V. Edwards, P. D. Ronney, "An Innovative Volatile Organic Compound Incinerator," 36th International Conference on Thermal Treatment Technologies and Hazardous Waste Combustors, Houston, TX, March 6 - 8, 2018.

E. Kong, P. D. Ronney, G. K. S. Prakash, "Dynamics of Direct Hydrocarbon PEM Fuel Cells" Fuel Cell Seminar & Energy Exposition, Long Beach, CA, November 7-9, 2017.

X. Ma, S. Shen, J. Wongwiwat, J. Gross, P. D. Ronney, "Flame propagation in narrow channels at varying Lewis number," Fall Technical Meeting, Combustion Institute, Western States Section, Laramie, WY, October 1 - 2, 2017.

J. Wongwiwat, P. Bhuripanyo, V. McCloyn, P. D. Ronney, "Hydrocarbon-fueled electrical power generator with no moving parts," Fall Technical Meeting, Combustion Institute, Western States Section, Laramie, WY, October 1 - 2, 2017.

A. A. Davani, P. D. Ronney, "A new jet-stirred reactor for chemical kinetics experiments," Fall Technical Meeting, Combustion Institute, Western States Section, Laramie, WY, October 1 - 2, 2017.

Z. Zhou, P. D. Ronney, "Effect of stoichiometric mixture fraction on hydrogen edge-flames in a counter-flow burner," Fall Technical Meeting, Combustion Institute, Western States Section, Laramie, WY, October 1 - 2, 2017.

A. A. Davani, P. D. Ronney, "A new jet-stirred reactor for chemical kinetics investigations," 10th U.S. National Combustion Meeting, Combustion Institute, April 24 - 26, 2017, College Park, MD.

S. Shen, X. Ma, J. Wongwiwat, J. Gross, P. Ronney, "Flame propagation in narrow channels at varying Lewis numbers," 10th U.S. National Combustion Meeting, Combustion Institute, April 24 - 26, 2017, College Park, MD.

J. Wongwiwat, P. D. Ronney, "Catalytic combustion driven thermal transpiration pump for self- sustaining power generation devices," 10th U.S. National Combustion Meeting, Combustion Institute, April 24 - 26, 2017, College Park, MD.

Z. Zhou, P. D. Ronney, "Effect of stoichiometric mixture fraction on hydrogen edge- flames in a counter-flow burner," 10th U.S. National Combustion Meeting, Combustion Institute, April 24 - 26, 2017, College Park, MD.

A. A. Davani, P. D. Ronney, "A jet- stirred chamber for combustion in homogeneous, isotropic, near- zero mean flow turbulence," 10th U.S. National Combustion Meeting, Combustion Institute, April 24 - 26, 2017, College Park, MD.

T. S. Welles, R. J. Milcarek, A. Baskaran, J. Ahn, P. D. Ronney, "Thermal transpiration based pumping and power generation," 10th U.S. National Combustion Meeting, Combustion Institute, April 24 - 26, 2017, College Park, MD.

R. Zelinsky, J. Crawmer, B. Richard, C.-H. Chen, H. Pearlman, P. D. Ronney, "A Swiss Roll style combustion reactor for non- catalytic reforming," 10th U.S. National Combustion Meeting, Combustion Institute, April 24 - 26, 2017, College Park, MD.

A. Davani, P. D. Ronney, "A New Jet-Stirred Apparatus for Chemical Kinetics Experiments," 16th SIAM International Conference on Numerical Combustion, April 3 – 5, 2017, Orlando, FL.

A. Davani, P. D. Ronney, "A New Jet-Stirred Apparatus for Turbulent Premixed Flame Experiments," 16th SIAM International Conference on Numerical Combustion, April 3 – 5, 2017, Orlando, FL.

C. H. Chen, B. Richard, Y. Zheng, H. Pearlman, S. Trivedi, S. Koli, A. Lawson, P. D. Ronney, "Progress on the Development of a Swiss-Roll Fuel Reformer for Syngas Production," Paper HT2016-7277, ASME Summer Heat Transfer Conference, Washington, DC, July 2016.

H. Song, P. Wang, R. S. Boles, D. Matinyan, H. Prahanphap, J. Piotrowicz, P. D. Ronney, "Effects of mixture fraction on edge-flame propagation speeds," Spring Technical Meeting, Combustion Institute, Western States Section, March 21 – 22, 2016, Seattle, WA.

S. Shen, J. Wongwiwat, J. Gross, X. Ma, P. D. Ronney , "Flame propagation in narrow channels at varying Lewis numbers" Spring Technical Meeting, Combustion Institute, Western States Section, March 21 – 22, 2016, Seattle, WA.

A. A. Davani, P. D. Ronney, "A jet-stirred apparatus for turbulent combustion experiments," 68th Annual Meeting, American Physical Society, Division of Fluid Dynamics, Boston, MA, Nov. 22 – 24, 2015.

J. Wongwiwat, J. Gross, P. Ronney, "Flame Propagation in Narrow Channels at Varying Lewis Number," 25th International Colloquium on the Dynamics of Explosions and Reactive Systems, August 3 - 7, 2015, Leeds, U.K.

D. Fernandez-Galisteo, J. Gross, V. Kurdyumov, P. D. Ronney, "Premixed flame propagation between two closely spaced parallel plates," 25th International Colloquium on the Dynamics of Explosions and Reactive Systems, August 3 - 7, 2015, Leeds, U.K.

P. Wang, H. Song, R. Boles, H. Prahanphap, J. Piotrowicz, P. D. Ronney, "The Effect of Mixture Fraction on Edge Flame Propagation Speed," 25th International Colloquium on the Dynamics of Explosions and Reactive Systems, August 3 - 7, 2015, Leeds, U.K.

A. A. Davani, P. D. Ronney, "A jet-stirred apparatus for turbulent combustion experiments," 25th International Colloquium on the Dynamics of Explosions and Reactive Systems, August 3 - 7, 2015, Leeds, U.K.

S. Trivedi, S. Koli, A. Lawson, C.-H. Chen, H. Pearlman, P. D. Ronney, "Fuel Reforming Using Counter-Current Heat-Recirculating Combustors," 25th International Colloquium on the Dynamics of Explosions and Reactive Systems, August 3 - 7, 2015, Leeds, U.K.

Davani, A. A., Ronney, P. D., "A jet-stirred apparatus for turbulent combustion experiments," 9th U.S. National Combustion Meeting, Combustion Institute, May 18 – 20, 2015, Cincinnati, OH.

P. Wang, H. Song, R. Boles, H. Prahanphap, J. Piotrowicz, P. D. Ronney, "The effect of mixture fraction on edge flame propagation speed," 9th U.S. National Combustion Meeting, Combustion Institute, May 18 – 20, 2015, Cincinnati, OH.

C.-H. Chen, B. Richard, Y. Zheng, H. Pearlman, S. Trivedi, S. Koli, A. Lawson, P. Ronney, "A 'Swiss-Roll' fuel reformer: Experiments and modeling," 9th U.S. National Combustion Meeting, Combustion Institute, May 18 – 20, 2015, Cincinnati, OH.

Chen, C.-H., Pearlman, H., Ronney, P. D., "A Novel TPOX-Based 'Swiss-Roll' Fuel Reformer," AIChE 2014 Fuel Cell Seminar and Energy Exposition, Nov. 16 – 21, 2014, Atlanta, GA.

Chen, C.-H., Pearlman, H., Ronney, P. D., "A TPOX-Based 'Swiss-Roll' Fuel Reformer," 2014 Fuel Cell Seminar and Energy Exposition, Nov. 10 – 13, 2014, Los Angeles, CA.

Qian, C., Kensek, K., Ronney, R. D., "Thermal Mass and Time Lag: calculating heating and cooling energy from a building roof/wall using weather data files," 43rd National Solar Conference, July 6 – 10, 2014, San Francisco, CA.

Gross, J., Pan, X., Ronney, P. D., "Flame Propagation at Low Lewis Number in Narrow Slots," Spring Technical Meeting, Combustion Institute, Western States Section, March 24 – 25, 2014, Pasadena, CA.

Boles, R. S., Li, W., Wang, P., Matinyan, D., Prahanphap, H., Piotrowicz, J., Song, H., Ronney, P. D., "The Effect of Mixture Fraction on Edge Flame Propagation Speed," Spring Technical Meeting, Combustion Institute, Western States Section, March 24 – 25, 2014, Pasadena, CA.

Shen, S., Gunasekera, K., Yang, J., Flamenco, J., Ronney, P. D., "Transient Plasma Discharge Ignition for Internal Combustion Engines," Spring Technical Meeting, Combustion Institute, Western States Section, March 24 – 25, 2014, Pasadena, CA.

Trivedi, S., Desai, S., Lawson, A., Chen, C.-H., Ronney, P. D., Fuel reforming using counter-current heat-recirculating combustors," Spring Technical Meeting, Combustion Institute, Western States Section, March 24 – 25, 2014, Pasadena, CA.

Chen, C.-H., Pearlman, H., Ronney, P. D., Valsamakis, I., Flytzani-Stephanopoulos,M. "A Non-Catalytic Fuel Flexible Reformer," 2013 NDIA Ground Vehicle Systems Engineering and Technology Symposium, August 21 – 22, 2013, Troy, MI.

Chen, C.-H., Pearlman, H., Sur, S., Thayer, J., Ronney, P. D., "A Non-Catalytic Fuel Flexible Reformer," 8th U.S. Joint Meeting, Combustion Institute, May 20 – 22, 2013, Park City, UT.

Prahanphap, H., Piotrowicz, J., Boles, R. S., Matinyan, D., Li, W., Ronney, P. D., "Effects of mixture fraction on edge-flame propagation," 8th U.S. Joint Meeting, Combustion Institute, May 20 – 22, 2013, Park City, UT.

Hsu, Y., Sapir, I., Ronney, P. D., "Miniature Power Source with Catalytic Combustor and Hybrid Thermoelectric Generator," 2012 PowerMEMS Workshop, December 2 – 5, 2012, Atlanta, GA

Hong, D., DeMarco, D., Yang, B., Ronney, P. D., Prakash, S., "Direct Hydrocarbon PEM Fuel Cells," 2012 PowerMEMS Workshop, December 2 – 5, 2012, Atlanta, GA

Schubert, W. W., Pandian, N. R., Spry, J. A., Ronney, P. D., "An Experimental Apparatus for Studying Rapid Thermal Heating on Microorganisms," 39th Committee on Space Research (COSPAR) Scientific Assembly, July 14 – 22, 2012, Mysore, India.

Chen, C.-H., Ronney, P. D., "Effects of Scale on Heat-recirculating Combustors," 12th International Workshop on Micro and Nanotechnology for Power Generation and Energy Conversion Applications, November 15 – 18, 2011, Seoul, Korea.

Chen, C.-H., Ronney, P. D., "Scale analysis of heat-recirculating combustors," Fall Technical Meeting, Combustion Institute, Western States Section, October 17 – 18, 2011, Riverside, CA

Piotrowicz, J., Ronney, P. D., "Effects of mixture fraction on edge-flame propagation," Fall Technical Meeting, Combustion Institute, Western States Section, October 17 – 18, 2011, Riverside, CA

Penkova, A., Sadhal, S. S., Ronney, P. D., Lee, T., Chen, C.-H., "Effect of hydrodynamic shear on the kinetics of lysozyme nucleation and aggregation," Seventh Interdisciplinary Transport Phenomena Conference, Sept. 19 – 23, 2011, Dresden, Germany.

Chen, C.-H., Ronney, P. D., "Effects of scale on non-adiabatic Swiss-roll heat-recirculating combustors," 23rd International Colloquium on the Dynamics of Explosions and Reactive Systems, July 24 -29, 2011, Irvine, CA.

Chen, C.-H., Ronney, P. D., "How lean can we burn? Extinction limits in heat- recirculating combustors and their applications," 7th US National Combustion Meeting, March 20 – 23, 2011.

Chen, C.-H., Ronney, P. D., "A Compact, Lightweight, Combustion-Driven Air Purification System," 2010 Chemical and Biological Defense Science and Technology Conference, Nov. 15-16, 2010, Orlando, FL. **(Selected as 1 of 12 Outstanding Posters out of 569 submissions).**

Chen, C.-H., Gowdagiri, S., Kumar, S., Ronney, P. D., "Experimental and numerical analysis of radiation effects in heat recirculating combustors." Spring Technical Meeting, Western States Section, Combustion Institute, March 22 – 23, 2010, Irvine, CA.

Chen, C.-H., Gowdagiri, S., Kumar, S., Ronney, P. D., "Numerical and Experimental Study in Swiss Roll Heat-Recirculating Burner," PowerMEMS 2009 Workshop, Washington, DC, Dec. 2 – 4, 2009.

Chen, C.-H., Ronney, P. D., "Numerical and Experimental Study of a "Swiss Roll" Heat-Recirculating Burner as an Active Gas Mask or Air Purifier," 2009 Chemical Biological Defense Science & Technology Conference, November 16 – 20, 2009, Dallas, TX.

Chen, C.-H., Ronney, P. D., "The Effect of Secondary Flow on Extinction Limits in Swiss Roll Burners," Fall Technical Meeting, Western States Section, Combustion Institute, October 26 – 27, 2009, Irvine, CA.

Chen, C.-H., Ronney, P. D., "Optimizing Swiss roll combustors for ultra-lean operation," 2009 U. S. National Meeting, Combustion Institute, May 18 – 20, 2009, Ann Arbor, MI.

Chen, C.-H., Ronney, P. D., Numerical Modeling of Swiss Roll Heat-Recirculating Burners," 3rd Southern California Symposium on Flow Physics, April 18, 2009, La Jolla, CA.

Chen, C.-H., Ronney, P. D., "An Active Gas Mask or Air Purifier Using Swiss Roll Heat-Recirculating Burner," 2008 Chemical Biological Defense Science & Technology Conference, New Orleans, LA, November 17 – 21, 2008.

Ahn, J., Ronney, P. D., Shao, Z. P., Haile, S. M., "A Thermally Self-Sustaining Miniature Solid Oxide Fuel Cell," Proceedings of the ASME International Mechanical Engineering Congress and Exposition, Nov. 11 – 15, 2007, Seattle, WA., pp. 117 – 122 (2008).

Hyland, P., Lee, J. M., Lin, C. S., Ahn, J., Ronney, P. D., "Effect of ammonia treatment on Pt catalyst used for low temperature reaction," Proceedings of the ASME International Mechanical Engineering Congress and Exposition, Nov. 11 – 15, 2007, Seattle, WA., pp. 135 – 140 (2008)

Sanford, L. L., Huang, S. Y. J., Lin, C. S., Lee, J. M., Ahn, J. M., Ronney, P. D., "Plastic mesoscale combustors/heat exchangers," Proceedings of the ASME International Mechanical Engineering Congress and Exposition, Nov. 11 – 15, 2007, Seattle, WA, pp. 141 – 145 (2008)

Lee, S., Ronney, P. D., "Simple, High-sensitivity Photobleaching Velocimetry," 2nd Southern California Symposium on Flow Physics, April 12, 2008, Los Angeles, CA.

Kuo, C.-H., Ronney, P. D., "Numerical Modeling of Non-adiabatic Heat Recirculating Combustors," 12th SIAM Conference on Numerical Combustion, Monterey, CA, March 31 – April 2, 2008.

Clayton, D., Ronney, P. D., Cha, M. S., "Propagation Rates and Stability Modes of Low Lewis Number Edge-Flames in a Counterflow Slot Burner," Spring Technical Meeting, Combustion Institute, Western States Section, Los Angeles, CA, March 17 -18, 2008.

Chen, C.-H., Ronney, P. D., "An Active Gas Mask Using a Heat-Recirculating Burner," Spring Technical Meeting, Combustion Institute, Western States Section, Los Angeles, CA, March 17 -18, 2008.

Ronney, P. D., Chang, I., Finkel, S., Kraigsley, A., "Dynamics of Propagating Fronts: Flames, Aqueous Reactions, Free-Radical Polymerization and Bacteria," 9th United States National Congress on Computational Mechanics (USNCCM-9), July 23 – 27, 2007, San Francisco, CA.

Memarzadeh, S., Rossi, J. Neiman, R, Ronney, P. D., Gundersen, M. A., "Transient Plasma Ignition for Internal Combustion Engines," 2007 U. S. National Meeting, Combustion Institute, La Jolla, CA, March 26 – 28, 2007.

Ahn, J., Ronney, P. D., "Effect of Wall Thermal Conductivity and Thickness on the Performance of Heat-Recirculating Reactors," 2007 U. S. National Meeting, Combustion Institute, La Jolla, CA, March 26 – 28, 2007.

Ahn, J., Ronney, P. D., "Effect of Ammonia Treatment on Pt Catalyst used for Low-Temperature Reaction," 2007 U. S. National Meeting, Combustion Institute, La Jolla, CA, March 26 – 28, 2007.

Kim, Y., Huh, H., Ahn, J., Ronney, P. D., "Effect of Scale and Fuel Type on Heat-Recirculation Combustor Performance," 2007 U. S. National Meeting, Combustion Institute, La Jolla, CA, March 26 – 28, 2007.

Clayton, D., Cha, M.-S., Ronney, P. D., "Propagation and Extinction of Premixed Edge-Flames in a Counterflow Slot Burner," 2007 U. S. National Meeting, Combustion Institute, La Jolla, CA, March 26 – 28, 2007.

Chen, C.-H., Ronney, P. D., Lewis Number Effects on Extinction Limits in Heat-Recirculating Burners," Fall Technical Meeting, Combustion Institute, Western States Section, Livermore, CA, Oct. 17 -18, 2006

Bretschger O., Finkel, S., Iverson, L., Kim, B. H., Mansfeld, F., Nealson, K., Prakash S., Ronney, P. D., Wang, H., Lüttge, A., "Bioengineered Fuel Cells: Optimization via Genetic Approaches and Multi-Scale Modeling," 6th PowerMEMS Workshop, Nov. 29 – Dec. 1, 2006, Berkeley, CA.

Ahn, J., Ronney, P. D., "Effect of Wall Thermal Conductivity and Thickness on the Performance of Heat-Recirculating Reactors," Fall Technical Meeting, Combustion Institute, Western States Section, Stanford, CA, October 17 – 18, 2005.

Posthill, J., Reddy, A., Siivola, E., Krueger, G., Mantini, M., Thomas, P., Venkatasubramanian, R., Ochoa, F., Ronney, P. D., "Portable power sources using combustion and thermoelectrics," 24th International Conference on Thermoelectrics, Clemson, SC, June 2005.

Ahn, J., Ronney, P. D., Shao, Z., Haile, S., "A Thermally Self-Sustaining Miniature Solid Oxide Fuel Cell," 4th Joint U.S. Sections Meeting, Combustion Institute, Philadelphia, PA, March 2005.

Ochoa, F., Ronney, P. D., "A thermal transpiration-based self-pressurizing mesoscale combustor" 4th Joint U.S. Sections Meeting, Combustion Institute, Philadelphia, PA, March 2005.

Kuo, C.-H., Ronney, P. D., "Numerical Modeling of Heat Recirculating Combustors," 4th Joint U.S. Sections Meeting, Combustion Institute, Philadelphia, PA, March 2005.

Ahn, J., Ronney, P. D., "Plastic Mesocombustors," 4th Joint U.S. Sections Meeting, Combustion Institute, Philadelphia, PA, March 2005.

Cha, M.-S., Manasra, S., Ronney, P. D., "Propagation Rates of Non-Premixed Edge Flames," 4th Joint U.S. Sections Meeting, Combustion Institute, Philadelphia, PA, March 2005.

Son, Y., Zouein, G., Gokoglu, S., Ronney, P. D., "Comparison of Carbon Dioxide and Helium as Fire Extinguishing Agents for Spacecraft," 4th Joint U.S. Sections Meeting, Combustion Institute, Philadelphia, PA, March 2005.

Theiss, N., Levin, J., Liu, J. B., Zhao, J., Wang, F., Ronney, P. D., Gundersen, M. A., "Transient Plasma Discharge Ignition for Internal Combustion Engines" 4th Joint U.S. Sections Meeting, Combustion Institute, Philadelphia, PA, March 2005.

Ahn, J., Eastwood, C., Ronney, P. D., Zongping, S., Kwak, C., Haile, S., A Thermally Self-Sustaining Miniature Solid Oxide Fuel Cell," 30th Symposium (International) on Combustion, Chicago, IL, July 2004 (poster presentation).

Theiss, N., Levin, J., Liu, J. B., Zhao, J., Wang, F., Ronney, P. D., Gundersen, M. A., "Corona Discharge Ignition for Advanced Stationary Natural Gas Engines" ASME Internal Combustion Engine Division Fall Technical Conference, Long Beach, CA, October 2004.

M. Abid, M., Liu, J.-B., Ronney, P. D., Struk, P. M., Weiland, K. J., "Structure Of Flame Balls At Low Lewis-number (SOFBALL) experiment, *2nd Zeldovich Memorial International Conference on Combustion and Detonation*, Moscow, Russia, September 2004.

Kwon, O. C., Abid, M., Liu, J. B., Ronney, P. D., Struk, P. M., Weiland, K. J., "Structure Of Flame Balls At Low Lewis-number (SOFBALL) Experiment," Paper No. 2004-0289, 42nd AIAA Aerospace Sciences Meeting, Reno, NV, January 5-8, 2004.

Liu, J. B., Wang, F., Lee, L., Ronney, P. D., Gundersen, M. A., "Effect of fuel type on flame ignition by transient plasma discharges," AIAA Paper No. 2004-0837, 42nd AIAA Aerospace Sciences Meeting, Reno, NV, January 5-8, 2004.

Liu, J. B., Wang, F., Lee, L., Ronney, P. D., Gundersen, M. A., "Effect of Discharge Energy and Cavity Geometry on Flame Ignition by Transient Plasma," AIAA Paper No. 2004-1011, 42nd AIAA Aerospace Sciences Meeting, Reno, NV, January 5-8, 2004.

Ahn, J., Eastwood, C., Ronney, P. D., "Extinction Limits of Heat-Recirculating Burners," Fall Technical Meeting, Combustion Institute, Western States Section, October 20-21, 2003, Los Angeles, CA.

Kuo, C. H., Eastwood, C., Ronney, P. D., "Numerical Modeling of Heat-Recirculating Burners," Fall Technical Meeting, Combustion Institute, Western States Section, October 20-21, 2003, Los Angeles, CA.

Son, Y., Zouein, G., Ronney, P., "Instabilities of upward-spreading flames over thermally thick fuels," Fall Technical Meeting, Combustion Institute, Western States Section, October 20-21, 2003, Los Angeles, CA.

Kuo, C. H., Eastwood, C., Sitzki, L., Borer, K., Ronney, P., "Numerical Modeling of Heat-Recirculating Burners," 3rd Joint US Sections Meeting of the Combustion Institute, Chicago, IL, March 21-23, 2003.

Liu, J. B., Ronney, P. D., "Premixed flame ignition by transient plasma discharges," 3rd Joint US Sections Meeting of the Combustion Institute, Chicago, IL, March 21-23, 2003.

Ahn, J., Eastwood, C., Sitzki, L., Borer, K., P., Ronney, P., "Catalytic and Non-Catalytic Combustion in Heat-Recirculating Burners," 3rd Joint US Sections Meeting of the Combustion Institute, Chicago, IL, March 21-23, 2003.

Kwon, O. C, Abid, M., Ronney, P. D., Wu, M. S., Ju, Y., "Numerical modeling of flame balls with radiative reabsorption effects," 3rd Joint US Sections Meeting of the Combustion Institute, Chicago, IL, March 21-23, 2003.

Maruta, K., Takeda, K., Sitzki, L., Borer, K., Ronney, P. D., Wussow, S., Deutschmann, O., "Catalytic Combustion in Microchannel for MEMS Power Generation, " Third Asia-Pacific Conference on Combustion, Seoul, Korea, June 24-27, 2001.

Sitzki, L, Borer, K., Schuster, E., Ronney, P. D., Wussow, S., "Combustion in Microscale Heat-Recirculating Burners," Third Asia-Pacific Conference on Combustion, Seoul, Korea, June 24-27, 2001.

Sitzki, L., Borer, K., Wussow, S., Schuster, E., Ronney, P. D. and Cohen, A., "Combustion in Microscale Heat-Recirculating Burners," Paper No. 2001-1087, 39th AIAA Aerospace Sciences Meeting, Reno, NV, January 8-11, 2001.

Honda, L., Son, Y. and Ronney, P. D., "Radiation-Driven Flame Spread Over Thermally-Thick Fuels in Quiescent Microgravity Environments," Paper No. 2001-0467, 39th AIAA Aerospace Sciences Meeting, Reno, NV, January 8-11, 2001.

Abid, M., Aung, K., Ronney, P. D., VanZandt, D. V., "Effects of Lewis Number on Flame Ball Dynamics," Paper No. 2001-0623, 39th AIAA Aerospace Sciences Meeting, Reno, NV, January 8-11, 2001.

Wu, M.-S., Ju, Y. and Ronney, P. D., "Numerical Simulation of Flame Balls with Radiative Reabsorption Effects," Paper No. 2000-0851, 38th AIAA Aerospace Sciences Meeting, Reno, NV, January 11-14, 2000.

Kaiser, C., Liu, J.-B. and Ronney, P. D., "Diffusive-thermal Instability of Counterflow Flames at Low Lewis Number," Paper No. 2000-0576, 38th AIAA Aerospace Sciences Meeting, Reno, NV, January 11-14, 2000.

Abid, M., Sharif, J. and Ronney, P. D., "Premixed-Gas Flame Propagation in Hele-Shaw cells," Spring Technical Meeting, joint U. S. Sections, Combustion Institute, Washington, D.C., March 15-17, 1999.

Liu, J. B. and Ronney, P. D., "Premixed Edge-Flames in Spatially-Varying Straining Flows," Spring Technical Meeting, joint U. S. Sections, Combustion Institute, Washington, D.C., March 15-17, 1999.

Abid, M., Sharif, J. and Ronney, P. D., "Propagating Fronts in Hele-Shaw Cells: Effects of Buoyancy and Thermal Expansion," Spring Technical Meeting, Combustion Institute, Western States Section, Berkeley, CA, March 23-24, 1998.

Sharif, J., Abid, M. and Ronney, P. D., "Mechanisms of Premixed Gas Flame Propagation in Quasi-2D Channels," Fall Technical Meeting, Combustion Institute, Western States Section, Diamond Bar, CA, October 23-24, 1997.

Honda, L. and Ronney, P. D., "Effects of Atmospheric Composition on Flame Spread at Microgravity," Fall Technical Meeting, Combustion Institute, Western States Section, Diamond Bar, CA, October 23-24, 1997.

Abid, M. and Ronney, P. D., "Propagation Rates of Buoyant Chemical Fronts in Aqueous Solution," Fall Technical Meeting, Combustion Institute, Western States Section, University of Southern California, Los Angeles, CA, October 28-29, 1996.

Sharif, J. and Ronney, P. D., "Premixed Gas Flame Propagation in a Hele-Shaw Cell," Fall Technical Meeting, Combustion Institute, Western States Section, University of Southern California, Los Angeles, CA, October 28-29, 1996.

Liu, J. B., Ronney, P. D., "Interferometry System for μg Combustion Experiments," Fall Technical Meeting, Combustion Institute, Western States Section, University of Southern California, Los Angeles, CA, October 28-29, 1996.

Lim, E. H., McIlroy, A., Ronney, P. D., Syage, J. A., "Effect of Spark Kernel Dynamics on Minimum Ignition Energies of Combustible Gases," Fall Technical Meeting, Combustion Institute, Western States Section, University of Southern California, Los Angeles, CA, October 28-29, 1996.

Zhu, J.-Y. and Ronney, P. D., "Numerical Simulation of Buoyant Chemical Front Propagation in Hele-Shaw Flow," 6th SIAM Conference on Numerical Combustion, March 4-6, 1996, New Orleans, LA.

Ronney, P. D., "Dynamics and Pattern Formation in Propagating Chemical Fronts in Buoyant and Turbulent Flows," 15th Dynamics Days Texas, Houston, TX, Jan. 3-6, 1996.

Fortmeyer, J. M. and Ronney, P. D., "Radiatively-Driven Flow in Gases," 48th Annual Meeting, Division of Fluid Dynamics, American Physical Society, Irvine, CA, November 19-21, 1995.

Honda, L. and Ronney, P. D., "Mechanisms of Concurrent-Flow Flame Spread Over Solid Fuels," Fall Technical Meeting, Combustion Institute, Western States Section, Stanford, CA, October 30-31, 1995.

Liu, J. B., Ronney, P. D., "Robust Interferometer System for Drop Tower Experiments," SPIE International Symposium on Optical Science, Engineering, and Instrumentation, July 9-14, 1995, San Diego, CA.

Delichatsios, M. A., Ronney, P. D., "Horizontal and Lateral Flame Spread on Solids: Closure and Diffusional Lewis Number Effects," Fall Technical Meeting, Combustion Institute, Eastern States Section, Dec. 5-7, 1994, Clearwater Beach, FL.

Ronney, P. D., Greenberg, J. B., Zhang, Y., Roegner, E. V., "Control of Fire Spread Through Ambient Atmosphere Effects," 34th Israel Conference on Aerospace Sciences, Feb. 16-17, 1994, Tel-Aviv, Israel.

Wang, Q., Ronney, P. D., "Mechanisms of Flame Propagation Limits in Vertical Tubes," Spring Technical Meeting, Combustion Institute, Eastern/Central States Section, March 15-17, 1993, New Orleans, LA.

Buckmaster, J. D., Ronney, P. D., Smooke, M. "Flame Balls: Past, Present, and Future," AIAA Paper No. 93-0712, 1993.

Invited academic seminars

Southern Methodist University, February 28, 2026
Texas A & M University, November 5, 2025
Arizona State University, October 24, 2025
University of California Irvine, October 10, 2025
University of Alabama, Tuscaloosa, AL, March 26, 2025
San Diego State University, April 27, 2022
Southern Methodist University, October 15, 2021 (online)
Arizona State University, March 29, 2019
University of California, San Diego, August 15, 2018
University of California, San Diego, August 16, 2016
University of Minnesota, November 5, 2014
University of California, San Diego, August 15, 2015
University of California, San Diego, April 28, 2014
Indian Institute of Technology at Madras, Chennai, India December 20, 2013
Indian Institute of Science at Bangalore, Bangalore, India, December 19, 2013
Indian Institute of Technology at Bombay, Mumbai, India, December 17, 2013
University of California, San Diego, August 20, 2013
Syracuse University, April 6, 2012
National Cheng-Kung University, Kaohsiung, Taiwan, March 14, 2012.
National Central University, Jhongli, Taiwan, March 13, 2012
University of California, Los Angeles, February 4, 2011
Louisiana State University, November 5, 2010
University of California, Irvine, October 25, 2010
University of California, San Diego, October 11, 2010
University of California, Riverside, April 3, 2009
Purdue University, Dec. 10, 2009
University of California, San Diego, August 18, 2009
University of Notre Dame, October 16, 2007
Seoul National University, Seoul, Korea, June 8, 2007
Chungnam National University, Daejeon, Korea, June 5, 2007
Korea Institute of Machinery and Materials, June 5, 2007
Korea Advanced Institute of Science and Technology, Daejeon, Korea, June 4, 2007

Ph.D. Students

Name	Graduation Year	Thesis Title	Status or Current Employer / Position
Mohamed Abid	1999	Instabilities of Propagating Quasi-2D Gaseous Flames and Chemical Fronts in Narrow Channels	Project manager, Jet Propulsion Laboratory, Pasadena; Lecturer, Dept. of Astronautical Engineering, USC
Linton Honda	2001	Effects of Convection and Radiation on Flame Spread Over Solid Fuel Beds	Project manager, Boeing Inc., El Segundo, CA
Youngjin Son	2004	Transport and Chemical Effects on Flame Spread over Thick Solid Fuel Beds in Microgravity and Earth Gravity Environments	Engineer, Caterpillar Inc.
Jeongmin Ahn	2005	An Experimental Study of Catalytic and Non-Catalytic Reaction in Heat Recirculating Reactors and Applications to Power Generation	Associate Professor, Syracuse University
Chun-Hsien "James" Kuo	2006	Numerical Modeling of Non-adiabatic Heat Recirculating Combustors	Professor, National Kaohsiung University of Applied Science, Taiwan
David Clayton	2007	Experimental Investigation of the Propagation and Extinction of Edge-Flames	Technical staff member, Exponent Inc., Los Angeles, CA
Seungro Lee	2008	High-Sensitivity Multidimensional Photobleaching Velocimetry	Professor, Inha University, Incheon, Korea
Chien-Hua Chen	2011	Experimental and Numerical Study of Swiss-roll Combustors and Their Application in Gas Mask System	Technical staff member, ACT Inc., Lancaster, PA
Ashkan Davani	2019	CFD Design of Jet-Stirred Chambers for Turbulent flame and chemical kinetics experiments	Flow Scientist, Georg Fischer
Eugene Kong	2019	Dynamics of Direct Hydrocarbon PEM Fuel Cells	Assistant Professor, Grand Canyon Univ., Phoenix, AZ
Brandie Rhodes	2019	Hydrogen Peroxide Vapor for Small Satellite Propulsion	Staff scientist, Aerospace Corporation, Los Angeles, CA
Jakrapop "Boom" Wongwiwat	2019	Mesoscale SOFC power generation system: modeling and experiments	Associate Prof., King Mongkut's Univ. of Technology, Bangkok, Thailand
Si Shen	2019	Premixed-gas flame propagation in Hele-Shaw cells	Postdoctoral Research Associate, Technion - Israel Institute of Technology, Haifa

Zhenghong "Harris" Zhou	2023	Experimental studies of jet-stirred reactors for chemical kinetics and turbulent flame experiments	Research Scientist, Chinese Academy of Sciences, Institute of Engineering Thermal Physics, Beijing, China
Fares Maimani	2024	Direct Hydrocarbon PEM Fuel Cells	Research Scientist, Meta Inc., Menlo Park, CA
Patharapong "Winry" Bhuripanyo	2024	Reforming and incineration in heat-recirculating combustors	Lecturer, Mahidol University, Thailand
Jui-Yang (Ray) Wang	2025	Jet-Stirred Reactors for Chemical Kinetic Studies: Analysis and Experiments	Staff Engineer, Gexcon Inc., Bethesda MD
ShihYao (Bob) Huang	2026 (expected)	Plasma-assisted combustion in jet-stirred reactors	Passed qualifying exam
Benjamin Cohen	2028 (expected)	Physics-Informed Neural Network modeling and simulation of combustion in confined geometries	Passed screening exam
Minsung Kang	2029 (expected)	High surface area catalytic combustion driven shape memory alloy wires for artificial muscles	Passed screening exam
Suma Ravi	2030 (expected)	Flow and transport effects on colony formation and nitrogen fixation in *trichodesmium*	

Postdoctoral advisees and professional staff

Name (Position)	Major research focus	Current position
Shenqyang Shy (Postdoctoral Research Associate)	Experimental simulation of turbulent combustion using aqueous autocatalytic reactions	Professor, National Central University, Taiwan
Ruey-Hung Chen (Postdoctoral Research Associate)	Diffusive-thermal instability in nonpremixed combustion	Professor and Chair. Department of Mechanical Engineering University of Maryland, Baltimore County
Mohamed Abid	Microgravity combustion	Deputy Chief Mechanical Engineer, Mars 2020 Mission, NASA Jet Propulsion Laboratory
Jianbang Liu (Research Associate Professor)	Transient plasma ignition of flames; interferometry; optics; mechanical design	Retired
Ming-Shin Wu (Postdoctoral Research Associate)	Flame ball modeling	Research staff member, Aerospace Corporation
Nesrin Olten (Postdoctoral Research Associate)	Frontal polymerization: propagation rates and extinction mechanisms	Professor, Atilim University, Turkey
Lars Sitzki (Postdoctoral Research Associate)	Microscale combustion and power generation	Product Manager (Wind Energy), Underwriters Laboratories, Zurich, Switzerland

Craig Eastwood (Postdoctoral Research Associate)	Microscale combustion and power generation	Research staff, Sandia Livermore National Labs
Jeongmin Ahn (Postdoctoral Research Associate)	Microscale combustion and power generation	Professor, Syracuse University
Oh Chae Kwon (Postdoctoral Research Associate)	Edge-flames	Professor, Sungkyunkwan University, Korea
Ken Aung (Postdoctoral Research Associate)	Edge-flames	Professor, Lamar University
Ashkan Davani (Postdoctoral Research Associate)	Modeling of turbulent flames and chemical reactors; micropropulsion	Flow Scientist, Georg Fischer

Visiting faculty and staff

Name	Major research focus	Permanent position
J. Barry Greenberg	Flame spread modeling	Professor, Technion University, Israel
Minpei Shoda	Throttleless Otto-Cycle Engines	Staff Engineer, Komatsu, Japan
Min-Suk Cha	Propagation and extinction of nonpremixed edge-flames	Associate Professor, King Abdullah University of Science and Technology, Saudi Arabia
Yuji Yahagi	Boundary-layer effects on flammability limits in tubes	Shibaura Institute of Technology, Japan
Changwei Ji	Modeling of cyclic variation in IC engines	Professor, Beijing Polytechnic University, China
Kaoru Maruta	Microscale combustion and power generation	Professor, Tohoku University, Japan
Joel Daou	Flame ball modeling	Associate Professor, University of Manchester, UK
Daniel Fernández-Galisteo	Modeling of flames in confined channels	Staff Researcher, CIEMAT, Madrid, Spain
Faisal Al-Malki	Edge-flame modeling	Professor, Taif University, Saudi Arabia

UNIVERSITY AND PROFESSIONAL SERVICE

Courses taught

USC:

AME 101 (Introduction to Mechanical Engineering and Graphics) – Fall 2005, Fall 2006, Fall 2007, Fall 2008, Fall 2009, Fall 2010 (2 sections), Fall 2011 (2 sections), Fall 2013 (2 sections); Fall 2014 (2 sections), Fall 2015 (2 sections), Fall 2016 (2 sections), Fall 2017 (2 sections), Fall 2018 (2 sections), Fall 2019 (2 sections), Fall 2020 (2 sections, virtual), Fall 2021 (2 sections), Fall 2022 (2 sections), Fall 2023 (2 sections), Fall 2024 (2 sections), Fall 2025 (2 sections)
AME 331 (Heat Transfer) – Spring 2004, Spring 2005, Spring 2006
AME 436 (pre-2024: Energy & Propulsion; 2024 and thereafter: Automotive and Flight Propulsion) – Spring 2004, Spring 2005, Spring 2006, Spring 2008, Spring 2009, Spring 2010, Spring 2011, Spring 2012, Spring 2013, Spring 2015, Spring 2016, Spring 2018, Spring 2019, Spring 2023, Spring 2024, Spring 2025
AME 513 (Principles of Combustion) – Fall 2012 (graduate course)
AME 513b (Fundamentals and Applications of Combustion II) - Spring 2020 (graduate course; second half virtual)
AME 514 (Applications of Combustion) – Fall 2004, Fall 2006, Fall 2008, Spring 2011, Spring 2013, Spring 2015, Spring 2017 (graduate course)
AME 517 (Radiation heat transfer) – Fall 2003, Fall 2009 (graduate course)
ME 310 (Thermodynamics I) – Fall 1993, Fall 1994
ME 331 (Heat Transfer) – Spring 1994, Spring 2000, Spring 2002, Spring 2003
ME 406 (Automotive engines) – Spring 1995, Spring 1996, Spring 1998, Spring 1999, Spring 2002
ME 430 (Thermal systems design) – Fall 1997
ME 436 (Energy and Propulsion) – Fall 1998, Fall 1999, Fall 2000, Fall 2001, Spring 2003
ME 599 (Special topics in combustion) – Fall 1995, Fall 2002 (graduate course)

Princeton:

MAE 435 (Special Topics, Propulsion) – Fall 1986
MAE 221 (Thermodynamics) – Spring 1987, Spring 1988, Spring 1989
MAE 427 (Mobile Power Plants) (included automotive engines, gas turbines and rockets) – Fall 1987, Fall 1988, Fall 1989*, Fall 1990, Fall 1991, Fall 1992
MAE 594 (Combustion) – Spring 1990, Spring 1991, Spring 1992, Spring 1993 (graduate course)

*Received Princeton Engineering Council Excellence in Teaching Award for this class.

Micro-seminars taught (for incoming USC freshmen)

"Internal Combustion Engines: the worst form of vehicle propulsion, except for all the other forms," USC, August 22 – 23, 2024; August 18 – 19, 2023; August 16 - 17, 2018; August 17 - 18, 2017; August 18 – 19, 2016; August 20 – 21, 2015; August 21 – 22, 2014; August 22 – 23, 2013; August 23 – 24, 2012; August 18 – 19, 2011; August 19 – 20, 2010; August 20 – 21, 2009

USC Center for Excellence in Research – faculty mentoring seminars

"Writing Compelling NSF Proposals," October 30, 2024; March 20, 2024; October 5, 2023; March 25, 2023; October 5, 2022; January 28, 2022; October 29, 2021; February 4, 2021; August 26, 2020; February

11, 2020; October 17, 2019; September 12, 2018; March 21, 2018, September 13, 2017; September 15, 2016; September 30, 2015; September 18, 2014; September 21, 2013.

Recent student recruiting activities

Visited 7 Texas Universities in October 2022: UT Dallas, Southern Methodist Univ., UT Austin, Texas A&M, Prairie View A&M (an HBCU), Rice Univ., and Univ. of Houston.
Interviewed candidates for USC Trustee and/or Presidential scholarships – February 23, February 25, & March 5, 2022; February 23 & 24, 2021; February 24 & March 2, 2020; February 22 & 26, 2019; February 16 & 27, 2018; February 28 & March 3, 2017
Represented USC at Don Bosco Tech High School (Rosemead, CA) College Fair - October 10, 2019; October 2, 2018; October 10, 2017
"Preview USC" meetings and lab tours with prospective students and their parents: April 9, 2019; February 14, 2019; April 17, 2018; February 22, 2018; April 20, 2017

Committees

Conference Service

Organizer, Gallery of Fluid Motion videos, American Physical Society Division of Fluid Dynamics annual meeting, Long Beach, CA, Nov. 21 – 23, 2010.

Invited Panelist

1st National Energy Symposium, Los Angeles, CA, June 15, 2006
2nd National Energy Symposium, Sacramento, CA., Sept. 12, 2006
3rd National Energy Symposium, Washington, DC., Dec. 7, 2006

National Advisory Boards

Member, University Space Research Association Microgravity Science Council, 2000 – 2004.

Professional Society Service

Member, Propellants and Combustion Technical Committee, American Institute of Aeronautics and Astronautics (AIAA) (2026 -)
Board Member, Combustion Institute, Western States Section (1996 – 2018)
Local Chair/Organizer, Spring Technical Meeting, Combustion Institute, University of Southern California, Los Angeles, CA, March 17 – 18, 2008
Local Chair/Organizer, 11th US National Combustion Meeting, Pasadena, CA, March 24 - 27, 2019

University of Southern California

Future Energy and Fuels and Initiative (2005 – 2006)
General Education Committee (1998-2000)

Viterbi School of Engineering, USC

Ph.D. Council (2015 – 2017)

Committee on Appointments, Promotions and Tenure (1998-2000; 2012 – 2016 [Chair 2013 - 2014]; 2018 - 2020) [Chair 2019-2020])
Engineering Faculty Council, Member (2011 – 2013, 2015, 2017 - 2019); Secretary (2012 – 2013, 2017 - 2019)
Division of Engineering Education, Member (2009-2011)
Chair, Instructional Laboratory Assessment Committee (2001-2003)
Research Committee (1999-2001)

Department of Aerospace and Mechanical Engineering, USC

Department Chair (2020 - present)
Department Associate Chair (2015 - 2017)
Pi Tau Sigma faculty advisor (1999 – 2020)
Awards Committee (2013 – 2020)
Merit Review Committee (2014 – 2016)
Faculty Search Committee (2012 – 2014)
Ph.D. Admissions Committee (2012 – 2014)
Students for the Exploration and Development of Space (SEDS) faculty advisor (Advising students building experiments that flew on the NASA KC-135 microgravity research aircraft) (2006 – 2008; 2011 – 2012)
Salary Committee (1994-95)
Seminar Committee (1995-96)
Freshman Advisor (1997-99)

Princeton University

Committee on Undergraduate Life (1987-88)

Department of Mechanical and Aerospace Engineering, Princeton University

ASME Faculty Advisor (1986-89)
Seminar Committee (1987-1993)
Freshman Advisor (1987-1992)
Junior Class Advisor (1987-1991)
Senior Class Advisor (1987-1992)
Undergraduate Committee (1987-1992)

Reviewer for manuscripts submitted to

AIAA Journal
AIAA Journal of Propulsion and Power
AIChE Journal
American Chemical Society Books
Applied Energy
Applied Mechanics Reviews
Applied Physics Letters
Applied Thermal Engineering
Archivum Combustionitis
ASME Journal of Heat Transfer
Cambridge University Press

Chaos
Chemical Engineering Journal
Combustion Science and Technology
Combustion Theory and Modelling
Combustion and Flame
Energies
Energy and Fuels
Experiments in Fluids
Experimental Thermal and Fluid Science
Fire Safety Journal
Fuel
Industrial and Engineering Chemistry Research
International Colloquium on the Dynamics of Explosions and Reactive Systems
International Journal of Hydrogen Energy
Journal of Applied Physics
Journal of Fluid Mechanics
Mediterranean Combustion Symposium
Micromachines
Microscale Thermophysical Engineering
Microgravity Science and Technology
National Research Council COBASE program
Nature
Physical Review Letters
Physical Review E
Physical Review Applied
Physics of Fluids
PLOS ONE
PowerMEMS conferences
Proceedings of the Combustion Institute
Proceedings of the Royal Society of London
Progress in Energy and Combustion Science
Scientific Reports
SIAM Journal of Applied Mathematics
Springer-Verlag Publishers

Reviewer for proposals submitted to

French National Research Agency (l'Agence Nationale de la Recherche)
METRANS
National Science Foundation
National Aeronautics and Space Administration
Petroleum Research Foundation
Research Grant Council of Hong Kong
State of California Energy Innovations Small Grant Program
Swiss National Science Foundation
U. S. Air Force Office of Scientific Research
U. S. Army Research Office
U. S. Advanced Research Projects Agency - Energy (ARPA-E)
U. S. Department of Energy
U. S. Office of Naval Research

U. S. State Department International Science and Technology Center
U.S. Civilian Research and Development Foundation
USC Center for Interdisciplinary Research

Honorary Societies

Phi Beta Kappa (Liberal arts)
Tau Beta Pi (Engineering)
Pi Tau Sigma (Mechanical engineering)

Professional Societies

Combustion Institute (Fellow)
American Society of Mechanical Engineers (Fellow)
American Institute of Aeronautics and Astronautics (Associate Fellow)
American Association for the Advancement of Science

Consulting

Advanced Cooling Technologies, Inc., Lancaster, PA - heat-recirculating combustors, incinerators, and fuel reformers; ozone-assisted diesel engine combustion
State of Washington, Office of the Attorney General - technical evaluation of claims made by a fuel additive retailer
Liner LLP – automotive engineering intellectual property
Federal Trade Commission – technical evaluation of claims made by a fuel additive manufacturer
Wavetech Industries, Los Angeles, CA – internal combustion engine design
Bingo Industries, Grand Junction, CO – combustion and heat transfer for electronic cigarettes
Mardirossian & Associates, Inc., Los Angeles, CA – fire analysis
Kelly, Sutter and Kendrick, P. C., Houston, TX – combustion and explosion analysis
Irvine Sensors, Inc., Irvine, CA – microscale combustion and power generation
Sigma-K Corp. – biomass fueled furnaces
RTI International – microscale combustion and power generation
MEMGen Corp., Torrance, CA – microscale combustion and power generation
Alstom Corp., Hartford CT – laser ignition
Greenrun Engine Co. – natural-gas engine development
General Atomics, San Diego, CA; Flammability and deflagration hazards of CAMDS DFS (Chemical Agent Munitions Disposal System, Deactivation Furnace System)