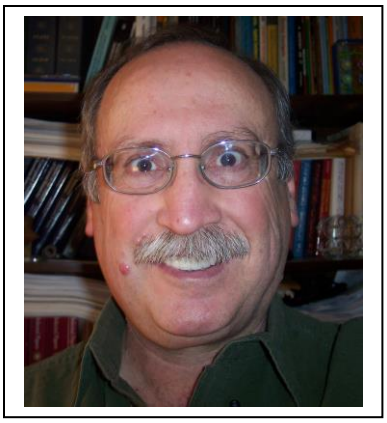
CURRICULUM VITA



Siavash H. Sohrab

Robert R. McCormick School of Engineering and Applied Science
Department of Mechanical Engineering
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PERSONAL:

Date of birth: September 21, 1949
Marital status: Single

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EDUCATION:

Ph.D.	Engineering Physics	University of California at San Diego	1981
M.Sc.	Mechanical Engineering	San Jose State University	1975
B.Sc.	Mechanical Engineering	University of California at Davis	1973

EMPLOYMENT:

1990 - Associate Professor
Robert McCormick School of Engineering and Applied Science
Department of Mechanical Engineering

1984 -1990 Assistant Professor
Robert McCormick School of Engineering and Applied Science
Department of Mechanical Engineering

1983-1984 Visiting Assistant Professor
Robert McCormick School of Engineering and Applied Science
Department of Mechanical Engineering

1981-1983 Senior Research Associate
Robert McCormick School of Engineering and Applied Science
Department of Mechanical Engineering

1978-1981 Research and Teaching Assistant, Department of Applied Mechanics and Engineering Sciences, University of California at San Diego.

1974-1975 Research and Teaching Assistant, Department of Mechanical Engineering San Jose State University, San Jose, California.

1975-1978 Research Scientist
NASA Ames Research Center, Moffett Field, Mountain View, California.

SCIENTIFIC AND PROFESSIONAL SOCIETIES OF WHICH A MEMBER:

American Association for the Advancement of Science
American Physical Society
American Mathematical Society
American Society of Mechanical Engineers
The Combustion Institute

AREAS OF SPECIALIZATION:

Combustion, heat and mass transfer, fluid mechanics, gas dynamics, thermodynamics.

AREAS WITH RESEARCH EXPERIENCE:

Conservation equations in reactive fields, statistical theories of turbulence, foundation of quantum mechanics, foundation of thermodynamics, transport phenomena, fluid mechanics, gas dynamics, heat and mass transfer, turbulent combustion modeling, theory of laminar flames, flammability limits, flame extinction/ignition, flame-front stability, flame-vorticity interactions, flame-flame interactions, flames in rotating flows, flame propagation in spatially-periodic flows, flame stabilization, pattern formation in flames, radiation in flames, premixed-diffusion flame transitions, droplet and spray combustion, hysteresis phenomena in combustion, internal combustion engines, chemical kinetics, flame inhibition, polymer combustion.

COURSES TAUGHT:

Mechanical Engineering 478-1, D78-2, Combustion (Graduate course)
Mechanical Engineering 471, Gas Dynamics of Chemically Reactive Flows (Graduate course)
Mechanical Engineering 379, Elements of Combustion Engineering
Mechanical Engineering 371, Combustion Engines
Mechanical Engineering 377, Heat Transfer
Mechanical Engineering 373, Fluid Mechanics
Mechanical Engineering 398, Engineering Design
Mechanical Engineering 370, Thermodynamics II
Mechanical Engineering 220, Thermodynamics

AWARDS:

NSF Faculty Initiation Award, two years, 1985-1987.

The Best Paper Award 1998, The Central States Section of The Combustion Institute. For the paper entitled: "Laminar Flame Theory Revisited-Stationary Coordinates for Systems Under Rigid-Body Versus Brownian Motions".

GRADUATE STUDENTS SUPERVISED:

PhD Students:

T. H. Lin, 1987
Thesis title: Studies on Homogeneous and Heterogeneous Reactive Flows.

W. J. Sheu, 1989
Thesis title: Studies on Reactive Flows.

C. L. Chen, 1991
Thesis title: Studies on Reactive Flows.

H. G. Pearlman, 1992
Thesis title: The Hydrodynamics and Combustion in Spherically Rotating and Periodically Strained Flows.

H. S. Lee, 1996
Thesis title: Hydrodynamic Aspects of Flame Instabilities in Premixed Gases.

M. Sc. Students (with thesis) :

B. H. Chao, 1984
Influence of Upstream Versus Downstream Heat Loss/Gain on Stability of Premixed Flames. S. H. Sohrab, and B. H. Chao, *Combust. Sci. and Tech.* **38**, 245-265 (1984).

D. Bidinger, 1985
Chemical Kinetic Mechanisms as Amplifiers of Diffusional Thermal Instabilities, D. F. Bidinger, and S. H. Sohrab, *Central States Section Meeting*, The Combustion Institute, May 5-6 (1986), San Antonio, Texas.

A. C. Rosenthal, 1986
Chemical Kinetics at the Lean Flammability Limit.

A. N. Jacobi, 1987
Chemical Kinetic and Thermal Aspects of Cellular Premixed Flames. A. N. Jacobi, and S. H. Sohrab, *Combust. Sci. and Tech.* **69**, 17-32 (1990).

J. H. Tien, 1988
Effects of Air-side Oxygen Addition on Soot Formation in Methane Coflow Diffusion Flame. J. H. Tien, and S. H. Sohrab, *Combust. Sci. and Tech.* **73**, 617-623 (1990).

David, Graham, 1989
Experimental Study of Stability of Jets Near the Critical Point, D. L. Graham, and S. H. Sohrab, *Central States Section Meeting*, The Combustion Institute, April (1989).

H. G. Pearlman, 1989
Flame Propagation and Extinction in Spatially-Periodic Longitudinal Velocity Fields. H. G. Pearlman, and S. H. Sohrab, *Combust. Sci. and Tech.* **107**, pp.155-164 (1995).

J. M. Cha, 1996
Stabilization of Premixed Flames on Rotating Bunsen Burners. J. M. Cha, and S. H. Sohrab, *Combust. Flame* **106**, pp.467-477 (1996).

O. Kurz, 1996
A Modified Thermo-Diffusive Theory of Laminar Flame Propagation. O. Kurz, and S. H. Sohrab, *The Western States Section Meeting*, The Combustion Institute, Sandia National Laboratory, April 14-15, 1997, Livermore Californian.

G. Jacob, 1996

Hydrodynamics of Equatorial Jets of Viscous Fluid Around Rotating Rigid Spheres. G. Jacob, and S. H. Sohrab (1996).

EDITORIAL EXPERIENCE:

WSEAS publications on Fluid Mechanics
WSEAS publications on Heat and Mass Transfer

Papers and proposals reviewed for:

WSEAS Transactions on Fluid Mechanics
WSEAS Transactions on Heat and Mass Transfer
Applied Mechanics Review
ASME Transactions
Combustion and Flame
Combustion Science and Technology
The Combustion Institute International Symposia
DOE
International J. Heat and Mass Transfer
NSF (Engineering division, Physics division)
Progress in Energy and Combustion Science
University of California, Berkeley

PUBLICATIONS:

1. Extinction of planar diffusion flames adjacent to flat surfaces of burning polymers. S. H. Sohrab, and F. A., Williams, *J. Polymer Sci., Polymer Chem. Ed.* **19**, 2955-2976 (1981).

2. Asymptotic theory of diffusion flame extinction with radiant loss from the flame zone. S. H. Sohrab, A. Liñán, and F. A. Williams, *Combust. Sci. Tech. 27*, 143-154 (1982).

3. Extinction of premixed flames by stretch and radiative loss. S. H. Sohrab, and C. K. Law, *Int. J. Heat Mass Transfer* **27**, No.2, 291-300 (1984).

4. Influence of upstream versus downstream heat loss/gain on stability of premixed flames. S. H., Sohrab, and B. H. Chao, *Combust. Sci. and Tech.* **38**, 245-256 (1984).

5. An experimental investigation on flame interaction and the existence of negative flame speeds. S. H. Sohrab, Z. Y. Ye, and C. K. Law, *20th Symposium (Int.) on Combustion,* The Combustion Institute, pp.1957-1965 (1984).

6. Influence of burner rim hydrodynamics on polyhedral flames and flame stabilization. S. H. Sohrab, and C. K. Law, *Combust. Flame* **62**, 243-254 (1985).

7. Theory of interactive combustion of counterflow premixed flames. S. H., Sohrab, Z. Y., Ye, and C. K. Law, *Combust. Sci. and Tech.* **45**, 27-45 (1986).

8. On radiative cooling and temperature profiles in counterflow premixed flames. G. E. Liu, Z. Y. Ye, and S. H. Sohrab, *Combust. Flame* **64**, 193-201 (1986).

9. Premixed flames in counterflow jets under rigid-body rotation. Z. H. Chen, G. E. Liu, and S. H. Sohrab, *Combust. Sci. and Tech.* **51**, 39-50 (1987).

10. On transition of diffusion to premixed flames in conserved systems. T. H. Lin, and S. H. Sohrab, *Combust. Flame* **68**, 73-79 (1987).

11. Influence of vorticity on counterflow diffusion flames. T. H. Lin, and S. H. Sohrab, *Combust. Sci. and Tech.* **52**, 75-90 (1987).

12. The influence of rotation on premixed flames in stagnation-point flow. G. I. Sivashinsky, and S. H. Sohrab, *Combust. Sci. and Tech.* **53**, 67-74 (1987).

13. Combustion of liquid fuel sprays in stagnation-point flow. Z. H. Chen, T. H. Lin, and S. H. Sohrab, *Combust. Sci. and Tech.* **60**, 63-77 (1988).

14. Flame propagation in a rotating gas. G. I. Sivashinsky, Z. Rakib, M. Matalon, and S. H. Sohrab, *Combust. Sci. and Tech.* **57**, 37-53 (1988).

15. Diffusion flames in opposed counter-rotating jets. T. H. Lin, and S. H. Sohrab, *Combust. Sci. and Tech.* **63**, 193-207 (1989) .

16. Extinction of counterflow diffusion flames in counter-rotating finite jets. J. W. Sheu , and S. H. Sohrab, *Combust. Sci. and Tech.* **66**, 39-57 (1989).

17. Influence of radiative heat loss on flammability limits. T. H. Lin , and S. H. Sohrab, *J. Chinese Soc. Mech. Engin.* **10**, No.1, 15-22 (1989).

18. Effects of rotation on Bunsen flame. W. J. Sheu, S. H. Sohrab, and G. I. Sivashinsky, *Combust. Flame* **79**, 190-198 (1989).

19. Chemical kinetic and thermal aspects of cellular premixed flames. A. N. Jacobi, and S. H. Sohrab, *Combust. Sci. and Tech.* **69**, 17-32 (1990).

20. Effects of air-side oxygen addition on soot formation in methane coflow diffusion flame. J. H. Tien, and S. H. Sohrab, *Combust. Sci. and Tech.* **73**, 617-623 (1990).

21. Some examples of hysteresis phenomena in combustion. H. G. Pearlman, and S. H. Sohrab, *Combust. Sci. and Tech.***76**, pp.311-320 (1991).

22. The role of droplet rotation in turbulent spray combustion modeling. H. G. Pearlman, and S. H. Sohrab, *Combust. Sci. and Tech.***76**, pp.321-334 (1991).

23. Simultaneous effects of fuel/oxidizer concentrations on the extinction of counterflow diffusion flames. C. L. Chen, and S. H. Sohrab, *Combust. Flame* **86**, 383-393 (1991).

24. Extinction of counterflow diffusion flames in counter and co-rotating finite jets with general Lewis numbers. C. L. Chen, and S. H. Sohrab, *Combust. Sci. and Tech.***79**, pp.269-292 (1991).

25. Aerodynamics of viscous flow in counter-rotating finite jets. W. J. Sheu, S. H. Sohrab, and G. I. Sivashinsky, *AIAA J. Power and Propulsion* **8**, No.4, pp.836-842 (1992).

26. Effects of rotation on cellular premixed flames stabilized on rotating porous spheres. H. G. Pearlman, and S. H. Sohrab, *Combust. Flame* **92**, pp.469-474 (1993).

27. Upstream interactions between planar symmetric laminar methane premixed flames. C. L. Chen, and S. H. Sohrab, *Combust. Flame* **101**, pp.360-370 (1995).

28. Hydrodynamic aspects of premixed flame stripes in two-dimensional stagnation-point flows. H. Lee, and S. H. Sohrab, *Combust. Flame* **101**, pp.441-451 (1995).

29. Flammability limit and limit-temperature of counterflow lean methane-air flames. Z. H. Chen, and S. H. Sohrab, *Combust. Flame* **102**, pp.193-199 (1995).

30. Extinction of counterflow premixed flames under periodic variation of the rate of stretch. H. G. Pearlman, and S. H. Sohrab, *Combust. Sci. and Tech.* **105**, pp.19-32 (1995).

31. Flame propagation and extinction in spatially-periodic longitudinal velocity fields. H. G. Pearlman, and S. H. Sohrab, *Combust. Sci. and Tech.* **107**, pp.155-164 (1995).

32. Stabilization of premixed flames on rotating Bunsen burners. J. M. Cha, and S. H. Sohrab, *Combust. Flame* **106**, pp.467-477 (1996).

33. Transport phenomena and conservation equations for multicomponent chemically-reactive ideal gas mixtures. S. H. Sohrab, *Proceedings of the 31st ASME National Heat Transfer Conference*, HTD-**328**, pp.37-60, (1996).

34. Diffusion flame extinction and viscous hydrodynamics around rotating porous spheres with surface blowing. H. G. Pearlman, and S. H. Sohrab, *Combust. Flame* **108**, pp.419-441 (1997).

35. Diffusional-thermal theory of laminar flame stability to longitudinal perturbations. H. Lee, and S. H. Sohrab, *Proceedings of the 32nd ASME National Heat Transfer Conference*, HTD-**341**, pp.119-129, (1997).

36. A scale-invariant model of statistical mechanics and modified forms of the first and the second laws of thermodynamics. S. H. Sohrab, *Rev. Gén. Therm.* **38**, 10 (1999).

37. The physical foundation of a grand unified statistical theory of fields and the invariant Schrödinger equation, S. H. Sohrab, *WSEAS Transactions on Circuits and Systems.* Issue 4,Vol **3**, pp.1017-1025 (2004).

38. Modified theories of axi-symmetric and two-dimensional jets, S. H. Sohrab, *IASME Transactions* **1**, Issue 3, pp.466-473 (2004).

39. Modified theories of thermal convection in a layer of fluid heated from below and laminar flow between two coaxial rotating cylinders, S. H. Sohrab, *IASME Transactions* **1,** Issue 4, pp.617-625 (2004).

40. Modified theories of turbulent two-dimensional and axi-symmetric jets and turbulent velocity discontinuity and free jet boundary, S. H. Sohrab, *IASME Transactions* **1**, (4), pp.626-633 (2004).

41. Modified form of the Helmholtz vorticity equation and its solution for spherical flow within a droplet in uniform or counterflow streams, S. H. Sohrab, *IASME Transactions* **1,** (4), pp.634-640 (2004).

42. Scale-invariant forms of conservation equations in reactive fields and a modified hydro-thermo-diffusive theory of laminar flames, S. H. Sohrab, *WSEAS Transactions on Mathematics* **3**, (4), pp.755-763 (2004).

43. Some thermodynamic considerations on the physical and quantum nature of space and time, S. H. Sohrab, *WSEAS Transactions on Mathematics* **3**, (4), pp.764-772 (2004).

44. Modified van der Waals equation of state, S. H. Sohrab, *WSEAS Transactions on Biology and Biomedicine* **1** (4), pp.422-424 (2004). ISSN-1109-9518.

45. Modified theories of axi-symmetric stagnation-point laminar boundary layer flow and counterflow jets. S. H. Sohrab, *IASME Transactions* **2** (7), pp: 1097- 1105 (2005).

46. Modified theory of laminar boundary layer flow over a flat plate. S. H. Sohrab, *IASME Transactions* **2**, (8), pp: 1389-1394 (2005).

47. Some implications of the modified forms of the first and the second laws of thermodynamics and the variational principles in chemically reactive systems. S. H. Sohrab, *IASME Transactions* **2**, (8), Vol1474-182 (2005)

48. A modified theory of laminar flow by free convection on a vertical hot surface. S. H. Sohrab, *WSEAS Transactions on Biology and Biomedicine* **2** (2), 192-198 (2005).

49. A modified theory of laminar flow near a rotating disk. S. H. Sohrab, *IASME Transactions* **2** (1), Vol., pp: 152-159 (2005).

50. A modified hydro-thermo-diffusive theory of laminar counterflow premixed flames. S. H. Sohrab, *WSEAS Transactions on Fluid Mechanics* **1** (1), pp: 31-39 (2006).

51. A modified hydro-thermo-diffusive theory of laminar premixed flames. S. H. Sohrab, *WSEAS Transactions on Fluid Mechanics*, Issue 5, Vol.1, pp: 337-345 (2006)

52. Modified theory of laminar flow around rigid and liquid cylinders. F. K. Benra and S. H. Sohrab, *WSEAS Transactions on Fluid Mechanics*, Issue 6, Vol. 1, pp: 533-541 (2006).

53. A modified hydro-thermo-diffusive theory of shock waves. S. H. Sohrab, *WSEAS Transactions on Heat and Mass Transfer* **1** (5), pp: 606-611 (2007).

54. Invariant Planck energy distribution law and its connection to the Maxwell-Boltzmann distribution function. S. H. Sohrab, *WSEAS Transactions on Mathematics*, Issue 2, Vol.6, pp: 254-262 (2007).

55. A modified theory of turbulent flow over a flat plate. S. H. Sohrab, in *Fluid Mechanics and Aerodynamics,* S. H. Sohrab, H. Catrakis, and N. Kobasko, and S. Necasova (Eds), pp: 71-79, WSEAS Press, 2007, ISBN: 978-960-6766-99-7.

56. On the hydrodynamics of finite jets and the geometry of laminar counterflow premixed flames. S. H. Sohrab, in: *Heat Transfer, Thermal Engineering and Environment.* S. H. Sohrab, H. J. Catrakis, N. Kobasko, and S. Necasova (Eds), pp: 33-40, *WESEAS Press*, 2007, ISBN: 978-960-6766-00-8.

57. Derivation of invariant forms of conservation equations from the invariant Boltzmann equation. S. H. Sohrab, in *Theoretical and Experimental Aspects of Heat and Mass Transfer,* S. H. Sohrab, H. Catrakis, and F-K Benra (Eds.), pp.27-35, WSEAS Press, 2008, ISBN: 978-960-6766-30-5.

58. The power of two, speed of light, force and energy and the universal gas constant. C. A. Charles, and S. H. Sohrab, in *Recent Advances on Applied Mathematics*, C. A. Long, S. H. Sohrab, G. Bognar, and L. Perlovsky (Eds.), pp: 87-97, WSEAS Press, 2008, ISBN: 978-960-6766-47-3.

59. A modified scale invariant statistical theory of turbulence. S. H. Sohrab, in *New Aspects of Fluid Mechanics and Aerodynamics*, S. H. Sohrab, H. J. Catrakis, N. Kobasko, N. Necasova, and N. Markatos (Eds.), pp: 165-173, WSEAS Press, 2008, ISBN: 978-960-6766-98-5.

60. The nature of mass, dark matter, and dark energy in cosmology and the foundation of relativistic thermodynamics. S. H. Sohrab, in *New Aspects of Heat Transfer, Thermal Engineering, and Environment*, S. H. Sohrab, H. J. Catrakis, N. Kobasko, (Eds.), pp: 434-442, WSEAS Press, 2008, ISBN: 978-960-6766-97-8.

61. Implications of a scale invariant model of statistical mechanics to nonstandard analysis and the wave equation. S. H. Sohrab, *WSEAS Transactions on Mathematics*, Issue 3, Vol.5, pp: 93-103 (2008).

62. Comparisons between velocity profiles according to the modified and the Navier-Stokes equations of motion and the experimental measurements for laminar boundary layer over a flat plate. M. J. Inkman, and S. H. Sohrab, *Computing and Computational Techniques in Sciences*, Jose M[a] Zamanillo Sainz de la Maza, and Pablo Luis Lopez Espi (Eds.), pp.116-124, WSEAS Press, 2008, ISBN: 978-960-474-009-3.

63. Some implications of a scale invariant model of statistical mechanics to transport phenomena. S. H. Sohrab, in *Recent Advances in Systems*, N. Mastorakis, V. Mladenov, Z. Bojkovic, S. Kartalopoulos, A. Varonides, and M. Jha (Eds.), pp: 557-568, WSEAS Press, 2009, ISBN: 978-960-474-097-0.

64. Universality of a scale invariant model of turbulence and its quantum mechanical foundation S. H. Sohrab, in *Recent Advances in Fluid Mechanics & Aerodynamics*, S. Sohrab, H. Catrakis, and. N. Kobasko (Eds.), pp: 134-140, WSEAS Press, 2009, ISBN: 978-960-474-106-9.

65. Some implications of a scale invariant model of statistical mechanics to turbulent combustion. S. H. Sohrab, in *Recent Advances in Heat Transfer, Thermal Engineering & Environment*, S. Sohrab, H. Catrakis, and. N. Kobasko (Eds.), pp: 82-95, WSEAS Press, 2009, ISBN: 978-960-474-105-2.

66. Certain periodic flows associated with solutions of Hill equation. G. Bognar, and S. H. Sohrab, in *Recent Advances in Fluid Mechanics & Aerodynamics*, S. Sohrab, H. Catrakis, and. N. Kobasko (Eds.), pp: 41-48, WSEAS Press, 2009, ISBN: 978-960-474-106-9. Also in: *Computers and Simulation in Modern Science*, Vol.4, Nikos Mastorakis, Metin Demiralp, and Valeri M. Mladenov (Eds.), WSEAS Press, pp.145-154 (2010). ISSN: 1792-6882, ISBN: 978-960-474-267-7

67. A comparative numerical study of the modified versus the Navier-Stokes equations of motion. B. Wan, F. K. Benra, and S. H. Sohrab, in *Recent Advances in Fluid Mechanics & Aerodynamics*, S. Sohrab, H. Catrakis, and. N. Kobasko (Eds.), pp: 157-162, WSEAS Press, 2009, ISBN: 978-960-474-106-9.

68. Normalized spacings between zeros of Riemann zeta function given by normalized Maxwell-Boltzmann distribution. S. H. Sohrab, in *Recent Advances in Applied Mathematics*, Stephen Lagakos, Leonid Perlovsky, Manoj Jha, Brindusa Covaci, Azami Zaharim, and Nikos Mastorakis, (Eds.), pp: 255-265, WSEAS Press, 2010, ISBN: 978-960-474-150-2.

69. Continuum versus quantum fields viewed through a scale invariant model of statistical mechanics. S. H. Sohrab, in *Continuum Mechanics, Fluids, and Heat*, Siavash H. Sohrab, Haris J. Catrakis, and. Nikolai Kobasko (Eds.), pp: 155-166, WSEAS Press, 2010, ISBN: 978-960-474-158-8.

70. Turbulence and quantum mechanics from cosmic to Planck scales. S. H. Sohrab, in *Latest Trends on Systems (Volume II)*, N. Mastorakis, V. Mladenov, Z. Bojkovic (Eds.), pp: 480-497, WSEAS Press, 2010, ISBN: 978-960-474-214-1.

71. Quantum theory of fields from Planck to cosmic scales. S. H. Sohrab, *WSEAS Transactions on Mathematics* **9**, (9), pp: 734-756 (2010).

72. On a scale invariant model of statistical mechanics and the kinetic theory of ideal gas. S. H. Sohrab, In: *European Computing Conference*, R. Leandre, M. Demiralp, M. Tuba, L. Vladareanu, O. Martin, N. Mastorakis, G-R Gillich, and S. C. Cismas (Eds.), pp: 427-455, WSEAS Press, 2011, ISBN: 978-960-474-297-4.

73. A possible solution of trisection problem. S. H. Sohrab, *WSEAS Transactions on Mathematics*, Issue 3, Vol.11, pp: 234-241 (2012).

74. On a scale invariant model of statistical mechanics, kinetic theory of ideal gas, and Riemann hypothesis. S. H. Sohrab, In: *Recent Research in Circuits & Systems*, 16th International Conference on Systems, E. Balas, M. Koksal, and V Vasek (Eds.), pp: 505-546, WSEAS Press, 2012, ISBN: 978-1-61804-108-1.

75. Scale invariant forms of Cauchy, Euler, Navier-Stokes and Modified Equation of motion and Helmholtz vorticity equation. S. H. Sohrab, In: *Advances in Fluid Mechanics & Heat & Mass Transfer*, Proceedings of 10th International Conference on Fluid Mechanics & Aerodynamics, P. Mastny, and V. Perminov (Eds.), pp: 380-398, WSEAS Press, 2012, ISBN: 978-1-61804-114-2.

76. Some implications of a scale invariant model of statistical mechanics to classical and relativistic thermodynamics. S. H. Sohrab, *Recent Researches in Electric and Energy Systems*, Ki Young Kim, Dario Assante, Marian Ciontu, and Jana Jirickova (Eds.), pp: 298-313, WSEAS press, 2013, ISBN: 978-960-474-328-5.

77. Boltzmann entropy of thermodynamics versus Shannon entropy of information theory. Siavash H. Sohrab, *Int. Journal Mech.* **8**, pp: 73-84 (2014).

78. On a scale invariant model of statistical mechanics and derivation of invariant forms of conservation equations from invariant Boltzmann and Enskog equations, S. H. Sohrab, in; *Recent Advances in Mechanics, Fluid Mechanics, Heat and Mass Transfer*, Myriam Lazard, Olga Martin, and Pradip Majumdar (Eds.), pp: 19-37, 2014, Interlaken, Switzerland, ISBN: 978-1-61804-474-220-0.

79. Some implications of a scale invariant model of statistical mechanics to classical and relativistic thermodynamics. S. H. Sohrab, *Int. J. Thermodynamics*, to appear.

80. Invariant forms of conservation equations and some examples of their exact solutions. S. H. Sohrab, *J. Energy Resources Technology* **136**, pp. 1-9 (2014).

81. On a scale invariant model of statistical mechanics and derivation of invariant forms of conservation equations. S. H. Sohrab, *WSEAS Transaction on Heat and Mass Transfer* **9**, pp. 169-194, 2014.

82. Invariant Forms of Conservation Equations for Reactive Fields and Hydro-Thermo-Diffusive Theory of Laminar Flames. S. H. Sohrab, *J. Energy Resources and Technology* **137**, pp. 1-10 (2015).

INVITED TALKS:

1. Invariant Planck energy distribution law and its connection to the Maxwell-Boltzmann distribution function. S. H. Sohrab, *10th WSEAS International Conference on Applied Mathematics*, Dallas, Texas, USA, November 1-3, 2006.

2. The power of two, speed of light, force and energy and the universal gas constant. C. A. Charles, and S. H. Sohrab, *Proceedings of the American Conference on Applied Mathematics (Math '08)*, Harvard University, Cambridge, Massachusetts, March 24-26, 2008.

3. A modified scale invariant statistical theory of turbulence, *6th IASME/WSEAS International Conference on Fluid Mechanics and Aerodynamics*, Rhodes, Greece, August 20-22, 2008.

4. Continuum versus quantum fields viewed through a scale invariant model of statistical mechanics. S. H. Sohrab, *5th IASME/WSEAS International Conference on Continuum Mechanics*, University of Cambridge, Cambridge, UK, February 23-25, 2010.

5. Turbulence and quantum mechanics from cosmic to Planck scales. S. H. Sohrab, *14th WSEAS International Conference on Systems*, Corfu Island, Greece, July 22-24, 2010.

6. Scale invariant model of Boltzmann statistical mechanics and universality of the laws of thermodynamics. S. H. Sohrab, *9th WSEAS International Conference on Fluid Mechanics & Aerodynamics*, Florence, Italy, August 23-25, 2011.

7. On a scale invariant model of statistical mechanics and the kinetic theory of ideal gas. S. H. Sohrab, In: *European Computing Conference*, R. Leandre, M. Demiralp, M. Tuba, L. Vladareanu, O. Martin, N. Mastorakis, G-R Gillich, and S. C. Cismas (Eds.), pp: 427-455, WSEAS Press, 2011, ISBN: 978-960-474-297-4.

8. On a scale invariant model of statistical mechanics, kinetic theory of ideal gas, and Riemann hypothesis, S. H. Sohrab, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition 09-12 January 2012, Nashville, Tennessee.

9. A possible solution of trisection problem. S. H. Sohrab, In: *Proceedings of the American Conference on Applied Mathematics (American-Math' 12*), January 25-27, 2012, Harvard, Cambridge.

10. Scale invariant forms of Cauchy, Euler, Navier-Stokes and Modified Equation of motion and Helmholtz vorticity equation. S. H. Sohrab, 10th WSEAS International Conference on Fluid Mechanics & Aerodynamics, August 21-23, 2012, Istanbul, Turkey.

11. On a scale invariant model of statistical mechanics, kinetic theory of ideal gas, and Riemann hypothesis. S. H. Sohrab, *University of Illinois*, Department of Mathematics, Statistics Seminars, Wednesday, January 23, 2013.

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12. Some implications of a scale invariant model of statistical mechanics to classical and relativistic thermodynamics. S. H. Sohrab, *WSEAS 1st International Conference on Power and Energy Systems (POES'13),* August 27-29, 2013, Chania, Crete Island, Greece.

CONFERENCE LECTURES:

1. Extinction of Diffusion Flames Above Heptane by Gaseous Chemical Inhibitors, S. H. Sohrab, *Annual Conference on Fire Research*, Center for Fire Research, National Bureau of Standards, Gaithersburg, Maryland, August 19-21 (1981).

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