

Curriculum Vitae

Name: CHOU Siaw Kiang (S.K. Chou)

Professor, Department of Mechanical Engineering, Faculty of Engineering
National University of Singapore

9 Engineering Drive 1, Engineering Block EA #04-12, Singapore 117576.

Tel. No: (65) 6516 2215

E-mail: skchou@nus.edu.sg

Education

1. 1977-80 Dip. D'Etudes Approfondies and Dr-Ing., Ecole Nationale Supérieure d'Arts et Metiers, Paris, France.
2. 1973-77 B.Eng., Mechanical Engineering, University of Singapore, Singapore.

Employment History

1. 1990-1992 Executive Director, Science Council of Singapore, and Executive Director, National Science and Technology Board
2. 1992-2000 Director, Industry and Technology Relations Office, NUS.
3. 1995-2002 Managing Director, NUS Technology Holdings Pte Ltd
4. 1998-2003 Head, Department of Mechanical Engineering, National University of Singapore
5. 2003-2008 Vice-Dean, External & Industry Relations Office, Faculty of Engineering, National University of Singapore
6. 2007-2009 and 2010-2017 Executive Director, Energy Studies Institute, NUS

Professional and Public Service (Current)

1. National Focal Point, Board of Advisers, ASEAN Committee on Science and Technology (COST).
2. Chairman, Advisory Committee, School of Mechanical and Aeronautical Engineering, Singapore Polytechnic.
3. Chairman, Technical Evaluation Panel, Grant for Energy Efficiency Technology (GREET), National Environment Agency, Singapore.
5. Past President, President (2012-2014), Institution of Engineers, Singapore (IES).
6. Fellow, American Society for Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).
7. Fellow, Institution of Engineers, Singapore (IES).
8. Fellow, ASEAN Academy of Engineering and Technology (AAET).
9. Fellow, Singapore Academy of Engineering (SAEng).
10. Fellow, Energy Institute (EI), UK.
11. Honorary Fellow, ASEAN Federation of Engineering Organisations (AFEO).

Summary

S.K. Chou obtained a B.Eng. in Mechanical Engineering from the University of Singapore, and a D.E.A. and Dr-Ing. from Ecole Nationale Supérieure d'Arts et Metiers, Paris, under a French Government Scholarship. He joined the Department of Mechanical Engineering, National University of Singapore, as a lecturer, in 1980, and is presently Professor. He is jointly appointed to the NUS Energy Studies Institute as its Executive Director.

From 1990 to 1992, he was seconded to the Science Council of Singapore and the National Science and Technology Board as Executive Director. In 1992, he helped establish the NUS Industry and Technology Relations Office (INTRO), where he was Director from 1992 to 2000. In 1995, he helped found the NUS Technology Holdings Pte Ltd (NUSH), a wholly-owned NUS company responsible for seeding new technology start-ups from university research and inventions. He held the position of Managing Director of NUSH from 1995 to 2001. He was Head of the Department of Mechanical Engineering, NUS, from 1998 to 2003, and Vice-Dean (External and Industry Relations) of the Faculty of Engineering from 2003 to 2008.

S.K. Chou is a Fellow and Past President of the Institution of Engineers (IES), Singapore, and a Fellow of the American Society of Heating, Refrigerating and Air-Conditioning Engineers. He is a Fellow of the Singapore Academy of Engineering, the ASEAN Academy of Engineering and Technology, the Energy Institute, UK, and the ASEAN Federation of Engineering Organisations. He chairs the Advisory Committee of the School of Mechanical and Aeronautical Engineering of Singapore Polytechnic, and is Chairman of the Technical Evaluation Panel on the Grant for Energy Efficiency Technology (GREET) of the National Environment Agency, Singapore. Up till March 2016, he was Chairman of the Advisory Board of the ASEAN Plan of Action on Science and Technology and was a member of the International Advisory Board of the APEC Center for Technology Fore-sighting. He is the national focal point on the Board of Advisers, ASEAN Committee on Science and Technology (COST).

He is credited with the formulation of the Envelope Thermal Transfer Value (ETTV) and the Residential Envelope Transmittance Value (RETV) energy standards used in the Singapore Green Mark Incentive Scheme. He is presently an Editor of the Elsevier journal, *Applied Energy*, and serves on the editorial boards of a number of other energy related journals.

Professional Experience

1. Energy systems modelling and simulation.
2. Energy analysis and modelling of buildings.
3. Special air-conditioning and dehumidification processes.
4. Condensation and humidity control.
5. Heat pump drying and dryer design.
6. Renewable energy and heat recovery systems for heating, power and cooling.

Current Research Interests

Energy performance of buildings and thermal performance of building envelopes, energy and thermal systems, microscale combustion, micro thrusters and propulsion, energy management and policy.

Selected Journal Publications

1. Chou, S. K., Vivier, L. and Gublin, F., "Le froid solaire par ejecteur", *Revue Internationale d'Helio-technique, COMPLES*, 2, 58-61 (1981).
2. Chou, S. K. and Ho, J.C., "A national strategy for energy management in Singapore", *Energy - The International Journal*, 10, 1017-1022 (1985).
3. Chou, S. K. and Wong, Y.W., "Predicting energy performance of commercial buildings in Singapore", *ASHRAE Transactions*, Part 1, 92, 116-136 (1986).
4. Chou, S. K., "Experimental studies on an air-air jet exhaust pump", *ASHRAE Transactions*, Part 2, 92, 496-506 (1986).

5. Ho, J C, Wijesundera, N. E. and Chou, S. K., "Energy analysis applied to food processing". *Energy - The International Journal*, 11, 887-892 (1986).
6. Chou, S K and Lee, Y. K., "A simplified overall thermal transfer value equation for building envelopes". *Energy - The International Journal*, 13, 657-670 (1988).
7. Ho, J C, Chou, S. K. and Chandratilleke, T.T., "Energy audit of a steel mill", *Energy - The International Journal*, 16, 1021-1029 (1991).
8. Chou, S K and Chang, W. L., "Development of an energy-estimating equation for large commercial buildings", *International Journal of Energy Research*, 17, 759-773 (1993).
9. Chou, S K, Wong, Y. W. and Chang, W. L., "Effects of multi-parameter changes on energy use of large buildings", *International Journal of Energy Research*, 17, 885-903 (1993).
10. Wijesundera, N E, Chou, S. K. and Jayamaha, S.E.G., "Heat flow through walls under transient rain conditions", *Journal of Thermal Insulation and Building Envelopes*, 17, 118-141 (1993).
11. Chou, S K, Hawlader. M. N. A., Ho, J. C., Wijesundera, N. E. and Rajasekar, S., "Performance of a heat-pump assisted dryer", *International Journal of Energy Research*, 18, 605-622 (1994).
12. Chou, S K, Chang, W. L., Wong, Y. W. and Yap, C. R., "Efficient energy performance of large commercial buildings in tropical climates", *Energy Conversion and Management*, 35, 751-763 (1994).
13. Chou, S.K. Wijesundera, N.E. and Jayamaha, S.E.G. "Determining the heat flow through building walls under simulated actual weather patterns". *International Journal of Energy Research*, 19, 243-251 (1995).
14. Chou, S K and Chang, W. L., "A generalised methodology for determining the total heat gain through building envelopes", *International Journal of Energy Research*, 20, 887-901 (1996).
15. Jayamaha, S E G, Wijesundera, N.E. and Chou, S. K., "Measurement of the heat transfer coefficient for walls", *Building and Environment*, 31, 399-407 (1996).
16. Jayamaha, S E G, Chou, S.K. and Wijesundera, N.E., "Drying of porous materials in the presence of solar radiation", *Drying Technology*, 14, 2339-2369 (1996).
17. Chou, S K and Chang, W. L., "Large building cooling load and energy use estimation", *International Journal of Energy Research*, 21, 169-183 (1997).
18. Chou, S K, Hawlader, M.N.A., Chua. K. J. and Teo, C. C., "A Methodology for Tunnel Dryer Chamber Design", *International Journal of Energy Research*, 21, 395-410 (1997).
19. Chou, S K, Hawlader, M. N. A. and Chua, E. K. J., "On the drying of food products in a tunnel dryer", *Drying Technology*, 15, 857-880 (1997).
20. Chou, S K, Hawlader, M.N.A, and Chua, E. K. J., "Identification of the receding evaporation front in convective food drying", *Drying Technology*, 15, 1353-1376 (1997).
21. Jayamaha, S E G, Wijesundera, N.E. and Chou, S. K., "Effect of rain on the heat gain through building walls in tropical climates", *Building and Environment*, 32, 465-477 (1997).
22. Hawlader, M N A, Chou. S. K. and Chua, K. J., "Development of design charts for tunnel dryers", *International Journal of Energy Research*, 21, 1023-1037 (1997).
23. Jayamaha, S E G, Chou, S. K. and Wijesundera, N.E., "Accounting for rain effects in building energy estimation", *International Journal of Energy Research*, 22, 61-71 (1998).
24. Hong, T., Chou, S. K., and Bong, T. Y., "A design day for building load and energy estimation", *Building and Environment*, 34, pp 469-477 (1999).
25. Chou, S. K., Hawlader, M. N. A., Ho J. C., and Chua, K. J., "The contact factor for dryer performance and design", *International Journal of Energy Research*, 23, 1277-1291 (1999).
26. Hong, T., Chou, S. K., and Bong, T. Y., "Building Simulation: An overview of developments and information sources", *Building and Environment*, 35, 347-361 (2000).
27. Chua, K. J., Mujumdar, A. S., Chou, S. K., Hawlader, M. N. A., and Ho, J. C., "Convective drying of banana, guava and potato pieces : Effect of cyclical variations of air temperature on convective drying kinetics and colour change", *Drying Technology-An International Journal*, 18, 2000, 907-936 (2000).
28. Chou, S.K., Chua, K.J., Mujumdar, A.S., Hawlader, M.N.A., and Ho, J.C., "On the intermittent drying of an agricultural product", *Food and Bioproducts Processing: Transactions of the Institution of Chemical Engineers, Part C*, 78, 193-203, (2000).
29. Chua, K. J., Chou, S. K., Ho, J. C., Mujumdar, A. S., and Hawlader, M. N. A., "Cyclic air temperature drying of guava pieces: Effects on moisture and ascorbic acid contents", *Food and Bioproducts Processing: Transactions of the Institution of Chemical Engineers, Part C*, 78, Part C, 72-78 (2000).
30. Chua, K. J., Mujumdar, A. S., Hawlader, M. N. A., Chou, S. K., and Ho, J. C., "Batch drying of banana pieces – effect of stepwise change in drying air temperature on drying kinetics and product colour", *Food Research International*, 34, 721-731(2001).
31. Chou, S. K., Yang, P. R., and Yap, C. R., "Maximum mass flow ratio due to secondary flow choking in an ejector refrigeration system", *International Journal of Refrigeration*, 24, 486-499 (2001).

32. Ho, J. C. Chou, S. K., Mujumdar, A. S., Hawlader, M. N. A., and Chua, K. J., "An optimisation framework for drying of a heat-sensitive product", *Applied Thermal Engineering*, 21, 1779-1798 (2001).
33. Hawlader, M. N. A., Chou, S. K., Chua, K. J., Ho J. C., and Mujumdar, "A. S., "On the steady-state modelling of a two-stage evaporator system", *International Journal of Energy Research*, 25, 859-880 (2001).
34. Hawlader, M. N. A., Chou, S. K., and Ullah, M. Z., "The performance of a solar assisted heat pump water heating system", *Applied Thermal Engineering*, 21, 1049-1065 (2001).
35. Chou, S. K., and Chua, K. J., "New Hybrid Drying Technologies for Heat Sensitive Foodstuffs", *Trends in Food Science and Technology*, 12, 359-369 (2001).
36. Chua, K. J., Mujumdar, A. S., Hawlader, M. N. A., Chou, S. K., and Ho, J. C., "Convective drying of agricultural products - effect of continuous and stepwise change in drying air temperature", *Drying Technology-An International Journal*, 19, 1949-1960 (2001).
37. Tan, M., Chua, K. J., Mujumdar, A. S., and Chou, S. K., "Osmotic dehydration of potato and pineapple- Effect of intermittent infrared radiation and continuous convection in a heat pump dryer", *Drying Technology-An International Journal*, 19, 2193-2207 (2001).
38. Ho, J. C., Chou, S. K., Chua, K. J., Mujumdar, A. S., and Hawlader, M. N. A., "Analytical study of cyclic temperature drying - effect on drying kinetics and product quality", *Journal of Food Engineering*, 51, 65-75 (2002).
39. Chua, K. J., Chou, S. K., Hawlader, M. N. A., Ho, J. C., and Mujumdar, A. S., "On the study of time-varying temperature drying - effect on drying kinetics and product quality", *Drying Technology-An International Journal*, HPD special issue, 20, 1579-1610 (2002).
40. Chua, K. J., Chou, S. K., Mujumdar, A. S., Ho, J. C., and Hawlader, M. N. A., "Heat pump drying: Recent developments and future trends", *Drying Technology-An International Journal*, HPD special issue, 20, 1559-1577 (2002).
41. Chua, K. J., Chou, S. K., Hawlader, M. N. A., Mujumdar, A. S., and Ho, J. C., "Modelling the moisture and temperature distribution within an agricultural product undergoing time-varying drying schemes", *Biosystems Engineering*, 81, 99-111 (2002).
42. Yang, W. M., Chou, S. K., Shu, C., Xue, H., and Li, Z. W., "Combustion in micro cylindrical combustors with and without a backward facing step", *Applied Thermal Engineering*, 22, 1777-1787 (2002).
43. Yang, W. M., Chou, S. K., Shu, C., Xue, H., and Li, Z. W., "Development of a micro thermophotovoltaic system", *Applied Physics Letters*, 82, 5255-5257 (2002).
44. Chou, S. K., Chua, K. J., and Lee S. M., "On the use of contact factor parameter to optimise heat pump drying", *Energy Conversion and Management*, 44, 1451-1464 (2003).
53. Chua, K. J., Mujumdar, A. S., and Chou, S. K., "Intermittent drying of bioproducts - An overview", *Bioresource Technology*, 90, 285-295 (2003).
45. Yang, W. M., Chou, S. K., Shu, C., Xue, H., Li, Z. W., Li, D. T., and Pan, J. F., "Microscale combustion research for application to micro thermophotovoltaic systems", *Energy Conversion and Management*, 44, 2625-2634 (2003).
46. Yang, W.M., Chou, S.K., Shu, C., Li, Z.W., and Xue, H., "Research on micro-thermophotovoltaic power generators", *Solar Energy Materials and Solar Cells*, 80, 95-104 (2003).
47. Hawlader, M. N. A., Chou, S. K., Jahangeer, K. A., Rahman, S. M. A., and Lau, K. W. Eugene., "Solar-assisted heat-pump dryer and water heater", *Applied Energy*, 74, 185-193 (2003).
48. Chou, S. K. and Chua, K. J., "On the Study of the drying behavior of a heat-sensitive biomaterial undergoing stepwise-varying temperature schemes", *Industrial and Engineering Chemistry Research*, 42, 4939-4952 (2003).
49. Chua, K. J. and Chou, S. K., "Low-cost drying technologies for developing countries", *Trends in Food Science and Technology*, 14, 519-528 (2003).
50. Yang, W. M., Chou, S. K. Shu, C., Xue, H., and Li, Z. W., "Power generation at the micro scale", *International Journal of Computational Engineering Science*, 4, 481-484 (2003)
51. Yang, W. M., Chou, S. K., Shu, C., Xue, H., and Li, Z. W., "Development of a prototype micro-thermophotovoltaic power generator", *Journal of Physics D: Applied Physics*, 37, 1017-1020 (2004).
52. Yang, W. M., Chou, S. K., Shu, C., Li, Z. W. and Xue, H., "A prototype microthermophotovoltaic power generator", *Applied Physics Letters*, 84, 3864-3866 (2004).
53. Chua, K. J., Chou, S. K., Mujumdar, A. S., Ho, J. C. and Hon, C. K., "Radiant-convective drying of osmotic treated agro-products: effect on drying kinetics and product quality", *Food Control*, 15, 145-158 (2004).
54. Chua, K. J. and Chou, S. K., "On the experimental study of a pressure regulatory system for bioproducts dehydration", *Journal of Food Engineering*, 62, 151-158 (2004).
55. Dey, Prasanta K., Hawlader, M. N. A., Chou, S. K., and Ho, J. C., "Performance of a single-effect desalination system operating with different tube profiles and materials", *Desalination*, 166, 69-78 (2004).

56. Chou, S. K., Chua, K. J., Ho, J. C., and Ooi, C. L., "On the study of an energy efficient greenhouse for heating, cooling and dehumidification applications", *Applied Energy*, 77, 355-373 (2004).
57. Xue, H., Chou, S.K., and Zhong, X.Q., "Thermal environment in a confined space of high-rise building with split air conditioning system", *Energy and Environment*, 39, 817-823 (2004).
58. Ho, J. C., Chua, K. J. and Chou, S. K., "Performance study of a microturbine system for cogeneration", *Renewable Energy*, 29, 1121-1133 (2004).
59. Zhang, K., Chou, S. K. and Ang, Simon S., "MEMS-based solid propellant microthruster design, simulation, fabrication and testing", *IEE/ASME Journal of Microelectromechanical Systems*, 13, 165-175 (2004).
60. Zhang, K L, Chou, S. K. and Ang, Simon S., "Development of a solid propellant microthruster with chamber and nozzle etched on a wafer surface", *Journal of Micromechanics & Microengineering*, 14, 785-792 (2004).
61. Li, Z. W., Chou, S. K., Shu, C., Yang, W. M. and Xue, H., "Predicting the temperature of a premixed flame in a microcombustor", *Journal of Applied Physics*, 96, 3524-3530 (2004).
62. Yang, W. M, Chou, S. K., Shu, C., Li, Z. W. and Xue, H., "Design, fabrication and testing of a prototype microthermophotovoltaic system", *IEE/ASME Journal of Microelectromechanical Systems*, 13, 851-858 (2004).
63. Chua, K. J. and Chou, S. K., "A modular approach to study the performance of a two-stage heat pump system for drying", *Applied Thermal Energy*, 25, 1363-1379 (2005).
64. Chua, K. J., Ho J. C., Chou S. K. and Islam M. R., "On the study of the temperature distribution within a human eye subjected to a laser source", *International Communications in Heat and Mass Transfer*, 32, 1057-1065 (2005).
65. Chua, K. J. and Chou, S. K., "A comparative study between intermittent microwave and infrared drying of agro-products", *International Journal of Food Science and Technology*, 40, 23-29 (2005).
66. Li, Z. W., Chou, S. K., Shu, C., Xue, H., and Yang, W. M., "Characteristics of premixed flame in microcombustors with different diameters", *Applied Thermal Engineering*, 25, 217-281 (2005).
67. Xue, H. Yang, W. M., Chou, S. K., Shu, C., and Li, Z. W., "Micro thermophotovoltaic power system for portable MEMS devices", *Microscale Thermophysical Engineering*, 9, 85-97 (2005).
68. Yang, W. M, Chou, S. K., Shu, C., Li, Z. W. and Xue, H., "Effect of wall thickness of micro combustor on the performance of micro thermophotovoltaic system", *Sensors and Actuators A: Physical*, 119, 441-445 (2005).
69. Li, Z. W., Chou, S. K., Shu, C., and Yang, W. M., "Effects of step height on wall temperature of a microcombustor", *Journal of Micromechanics and Microengineering*, 15, 207-212 (2005).
70. Zhang, K L, Chou, S. K., and Ang, Simon S., "Development of a low temperature co-fired ceramic solid propellant microthruster", *Journal of Micromechanics & Microengineering*, 15, 944-952 (2005).
71. Li, Z. W., Chou, S. K., Shu, C., and Yang, W. M., "Entropy generation during microcombustion", *Journal of Applied Physics*, 97, 084914/8 (2005)
72. Zhang, K.L., Chou, S.K., Ang, S.S., and Tang, X.S., "A MEMS-based solid propellant microthruster with Au/Ti ignitor", *Sensors and Actuators A: Physical*, 122, 113-123 (2005).
73. Yang W.M., Chou, S.K., Shu, C., Li, Z. W., and Xue, H., "Study of catalytic combustion and its effect on the performance of microthermophotovoltaic power generators", *Journal of Physics D: Applied Physics*, 38, 4252-4255 (2005).
74. Zhang, K.L., Chou, S.K., and Ang, S.S., "Performance prediction of a novel solid propellant microthruster", *Journal of Propulsion and Power*, 22, 55-63 (2006).
75. Chou, S.K., Chua, K.J., Teoh, S.H., and Ho, J.C., "Drying of porcine dermal tissue via pressure swing adsorption", *Drying Technology*, 24, 973-982 (2006).
76. Xue, H., Yang, W.M., Chou, S.K., Shu, C., and Li Z.W., "Catalytic effect of microcombustion in micro thermophotovoltaic system", *Nanoscale and Microscale Thermo Physical Engineering*, 10, 275-282 (2006).
77. Chua, K.J., Chou, S.K., and Ho, J.C., "An analytical study on the thermal effects of cryosurgery on selective cell destruction", *Journal of Biomechanics*, 40, 100-116 (2007).
78. Zhang, K.L., Chou, S.K., and Ang, S.S., "Investigation on the ignition of a MEMS solid propellant microthruster before propellant combustion", *Journal of Micromechanics and Microengineering*, 17, 322-332 (2007).
79. Zhang, K.L., Chou, S. K., and Ang, S. S., "Fabrication, modelling and testing of a thin film Au/Ti microheater", *International Journal of Thermal Sciences*, 46, 580-588 (2007).
80. Zhang, K.L., Chou, S.K., and Ang, S.S., "A wireless addressing interface circuitry for microthruster array applications", *Aircraft Engineering and Aerospace Technology*, 79, 628-634 (2007).
81. Chou, S.K., Chua, K. J., Teoh, S.H., Lim, K.K., and Sun, W.Q., "Development of a novel pressure swing adsorption dehydration system for the preservation of dermal tissue", *Materials Science & Engineering C - Biomimetic & Supramolecular Systems*, 27, 313-324 (2007).
82. Yang W. M., Chou, S. K., Shu, C., Li, Z. W., and Xue, H., "Experimental study of micro-thermophotovoltaic systems with different combustor configurations", *Energy Conversion and Management*, 48, 1238-1244 (2007).

83. Yang W. M., Chou, S. K., and Shu, C., "Effect of current-collector structure on performance of passive micro direct methanol fuel cell", *Journal of Power Sources*, 164, 549-554 (2007).
84. Chua, K. J., Ho, J.C., and Chou, S.K., "A comparative study of different control strategies for indoor air humidity", *Energy and Buildings*, 39, 537-545 (2007).
85. Xi, X.C., Poo, A. N. , and Chou, S. K., "Support vector regression model predictive control on a HVAC plant", *Control Engineering Practice*, 15, 897-908 (2007).
86. Chua, K. J., Chou, S. K. and Ho, J. C., "A model to study the effects of different control strategies on space humidity during part-load conditions", *Building and Environment*, 43(12), 2074-2089 (2008).
87. Li, J., Chou, S.K., Li, Z.W., and Yang, W.M., "A comparative study of H₂-air premixed flame in micro combustors with different physical and boundary conditions", *Combustion Theory and Modelling*, 12, 325-347 (2008).
88. Li, J., Chou, S.K., Yang, W.M., and Li, Z.W., "Experimental and numerical study of the wall temperature of cylindrical micro combustors", *Journal of Micromechanics and Microengineering*, 19, 015019 (2009).
89. Li, J., Chou, S.K., Li, Z.W., and Yang, W.M., "Development of 1D model for the analysis of heat transport in cylindrical micro combustors", *Applied Thermal Engineering*, 29, 1854-1863 (2009)
90. Li, J., Chou, S.K., Huang, G., Yang, W.M., and Li, Z.W., "Study on premixed combustion in cylindrical micro combustors: transient flame behavior and wall heat flux", *Experimental Thermal and Fluid Science*, 33, 764-773 (2009).
91. Li, J., Chou, S.K., Yang, W.M., and Li, Z.W., "A numerical study on premixed micro combustion of CH₄-air mixture: effects of combustor size, geometry and boundary conditions on flame temperature", *Chemical Engineering Journal*, 150, 213-222 (2009).
92. Li, J., Chou, S.K., Li, Z.W., and Yang, W.M., "A potential heat source for the micro-thermophotovoltaic (TPV) system", *Chemical Engineering Science*, 64, 3282-3289 (2009).
93. Chou, S. K., Chua, K. J. and Ho, J. C., "A study on the effects of double skin facades on the energy management in buildings", *Energy Conversion and Management*, 50, 2275-2281 (2009).
94. Li, J., Chou, S.K., Li, Z.W., and Yang, W.M., "Characterization of wall temperature and radiation power through cylindrical dump micro-combustors", *Combustion and Flame*, 156, 1587-1593 (2009)
95. Yang, W.M., Chou, S.K., and Li, J., "Micro-thermophotovoltaic power generator with high power density", *Applied Thermal Engineering*, 29, 3144-3148 (2009).
96. Chua, K.J. and Chou, S.K., "On the study of the freeze-thaw thermal process of a biological system", *Applied Thermal Engineering*, 29, 3696-3709 (2009)
97. Chua, K.J. and Chou, S.K., "Energy performance of residential buildings in Singapore", *Energy*, 35, 667-678 (2010)
98. Lian, Z.T., Chua, K.J., and Chou, S.K., "A thermoeconomic analysis of biomass energy for trigeneration", *Applied Energy*, 87, 84-95 (2010)
99. Li, J., Chou, S.K., Li, Z.W., and Yang, W.M., "Experimental investigation of porous media combustion in a planar micro-combustor", *Fuel*, 89, 708-715 (2010)
100. Chua, K.J. and Chou, S.K., "An ETTV-based approach to improving the energy performance of commercial buildings", *Energy and Buildings*, 42, 491-499 (2010).
101. Li, J., Chou, S.K., Li, Z.W., and Yang, W.M., "Development of one dimensional model to predict the flame temperature in cylindrical micro combustors", *Heat Transfer Engineering*, 31, 581-591 (2010)
102. Chua, K.J.E., Chou, S.K. and Yang, W.M., "Advances in Heat Pump Systems: A Review", *Applied Energy*, 3611-3624, 87 (2010).
103. Yang, W.M., Chou, S.K., Pan, J.F., Li J. and Zhao, X., "Comparison of cylindrical and modular micro combustor-radiator for micro-TPV system application", *Journal of Micromechanics and Microengineering*, 20, 085003-1-8 (2010)
104. Chou, S.K., Yang, W.M., Li, J. and Li, Z.W., "Porous media combustion for micro-thermophotovoltaic system application", *Applied Energy*, 87, 2862-2867 (2010)
105. Chua, K.J.E. and Chou, S.K., "Evaluating the performance of shading devices and glazing types to promote energy efficiency of residential buildings", *Building Simulation*, 3, 181-194 (2010).
106. Pan, J. F., Yang, W.M., Tang, A.K., Chou, S.K., Duan, L., Li, X.C., and Xue, H., "Micro combustion in sub-millimeter channels for novel modular thermophotovoltaic power generators", *Journal of Micromechanics and Microengineering*, 20, 125021 (2010).
107. Chua, K.J.E. and Chou, S.K., "A performance-based method for energy efficiency improvement of buildings", *Energy Conversion and Management*, 52, 1829-1839 (2011).
108. Chou, S.K., Yang, W.M., Li, J., Chua, K.J.E., and Zhang, K.L., "Development of micro power generators - A review", *Applied Energy*, 88, 1-16 (2011).
109. Yang, W.M., Chou, S.K., Chua, K.J.E., Li, J., and Zhao X., "Research on modular micro combustor-radiator with and without porous media", *Chemical Engineering Journal*, 168, 799-802 (2011).

110. Balasubramanian, K., Lee, P.S., Jin, L.W., Chou, S.K., Teo, C.J. Teo and Gao Shan., "Experimental Investigations of Flow Boiling Heat Transfer and Pressure Drop in Straight and Expanding Microchannels- A Comparative Study", *International Journal of Thermal Sciences*, 50, 2413-2421 (2011).
111. Lee, Y.J., Lee, P.S., and Chou, S.K., "Enhanced thermal transport in microchannel using oblique fins", *Journal of Heat Transfer, Transactions ASME*, 134, (2012).
112. Yang, W.M., Jiang, D.Y., Chou, S.K., Chua, K.J., An, H., and Kumarasamy, K., "Experimental study on micro modular combustor for micro-thermophotovoltaic system application", *International Journal of Hydrogen Energy*, 37, 9576-9583 (2012).
113. Kumarasamy, K., Chou, S.K., Khoong, L.E., Tan, Y.M., Lu, C.W., and Yang, W.M., "Low temperature co-fired ceramic vaporizing liquid microthruster for microspacecraft applications", *Applied Energy*, 97, 577-583 (2012).
114. An H., Yang W.M., Chou, S.K., and Chua, K.J., "Combustion and emissions characteristics of diesel engine fuelled by biodiesel at partial load conditions", *Applied Energy*, 99, 363-371 (2012).
115. Chua, K.J., Chou, S.K., Yang, W.M., and Yan, J., "Achieving better energy-efficient air conditioning - A review of technologies and strategies", *Applied Energy* 104, 87-104 (2013).
116. Yang, W.M., An, H., Chou, S.K., Vedharaj, S., Vallinagam, R., Balaji, M., Mohammad, F.E.A., and Chua, K.J., "Emulsion fuel with novel nano-organic additives for diesel engine application", *Fuel*, 104, 726-731 (2013).
117. Chua, K.J., Zhao, X., and Chou, S.K., "Effects of crucial parameters on the freezing delivery in the cryosurgical system", *Applied Thermal Engineering*, 51 (1-2), 734-741 (2013).
118. An H., Yang, W.M., Maghbouli, A., Li, J., Chou, S.K., and Chua, K.J., "A numerical study on a hydrogen assisted diesel engine", *International Journal of Hydrogen Energy*, 38, 2919-2928 (2013).
119. Alam, M.F.E., Yang, W.M., Lee, P.S., Chou, S.K., and Yap, C.R., "Experimental investigation of the performance and emission characteristics of direct injection diesel engine by water emulsiondiesel under varying engine load condition", *Applied Energy*, 102, 1042-1049 (2013).
120. Lee, Y.J., Lee, P.S., and Chou, S.K., "Numerical study of fluid flow and heat transfer in the enhanced microchannel with oblique fins", *Journal of Heat Transfer – Transactions of the ASME*, 135, no. 4 (2013),
121. Vallinayagam R., Vedharaji S., Yang, W.M., Lee, P.S., Chou, S.K., and Chua, K.J., "Combustion performance and emissions characteristics study of pine oil in a diesel engine", *Energy*, 57, 344-351 (2013).
122. Lee, Y.J., Lee, P.S., and Chou, S.K., "Hotspot mitigation with obliquely finned microchannel heat sink – an experimental study", *IEEE Transactions on Components, Packaging and Manufacturing Technology*, Part A, 3, no.8, 1332-1341 (2013).
123. Vallinayagam, R., Vedharaj, S., Yang, W.M., Saravanan, C.G., Lee, P.S., Chua, K.J.E., and Chou, S.K., "Emission reduction from a diesel engine fueled by pine oil biofuel using SCR and catalytic converter", *Atmospheric Environment*, 80, 190-197 (2013).
124. An, H., Yang, W.M. , Maghbouli, A., Chou, S.K., and Chua, K.J., "Detailed physical properties prediction of pure methyl esters for biodiesel combustion modeling", *Applied Energy*, 102, 647-656 (2013).
125. Maghbouli, A., Yang, W. , An, H., Li, J., Chou, S.K., and Chua, K.J., "An advanced combustion model coupled with detailed chemical reaction mechanism for DI diesel engine simulation", *Applied Energy*, 111, 758-770 (2013).
126. Vedharaj, S., Vallinayagam, R., Yang, W.M., Chou, S.K., Chua, K.J.E. and Lee, P.S., "Experimental investigation of Kapok oil (Ceiba Pentandra) biodiesel as alternate fuel for diesel engine", *Energy Conversion and Management*, 75, 773-779 (2013).
127. Balasubramanian, K., Jagirdar, M., Lee, P.S., Teo, C.J. and Chou, S.K., "Experimental investigation of flow boiling heat transfer and instabilities in straight microchannels", *International Journal of Heat and Mass Transfer*, 65, 491-499 (2013).
128. An, H., Yang, W.M. , Maghbouli, A., Li, J., Chou, S.K., and Chua, K.J., "Performance, combustion and emission characteristics of biodiesel derived from waste cooking oils", *Applied Energy*, 112, 493-499 (2013).
129. Yang, W.M., An, H., Chou, S.K., Chua, K.J., Mohan, B., Sivasankaralingam, V., Raman, V., Maghbouli, A., and Li, J., "Impact of emulsion fuel with nano-organic additives on the performance of diesel engine", *Applied Energy*, 112, 1206-1212 (2013).
130. Mohan, B., Yang, W., and Chou, S.K., "Fuel injection strategies for performance improvement and emissions reduction in compression ignition engines - A review", *Renewable & Sustainable Energy Reviews*, 28, 664-676 (2013).
131. Nagarajan, S., Chou, S.K., Cao, S., Wu, C., and Zhou, Z., "An updated comprehensive techno-economic analysis of algae biodiesel", *Bioresource Technology*, 145: 150-156 (2013).
132. Balasubramanian, K. , Lee, P.S., Teo, C.J., and Chou, S.K., "Flow boiling heat transfer and pressure drop in stepped fin microchannels", *International Journal of Heat and Mass Transfer*, 67, 234-252 (2013).
133. Mohan, B., Yang, W., and Chou, S.K., "Development of an accurate cavitation coupled spray model for diesel engine simulation", *Energy Conversion and Management*, 77, 269-277 (2014).

134. Vallinayagam, R., Vedharaj, S., Yang, W.M., Saravanan, C.G., Lee, P.S., Chua, K.J.E., and Chou, S.K., "Impact of ignition promoting additives on the characteristics of a diesel engine powered by pine oil-diesel blend", *Fuel*, 117, 278-285 (2014).
135. Jin, L.W., Lee, P.S., Kong, X.X., Fan, Y., and Chou, S.K., "Ultra-thin minichannel LCP for EV battery thermal management", *Applied Energy*, 113, 1786-1794 (2014).
136. Vedharaj, S., Vallinayagam, R., Yang, W.M., Chou, S.K., Chua, K.J.E., and Lee, P.S., "Experimental and finite element analysis of a coated diesel engine fueled by cashew nut shell liquid biodiesel", *Experimental Thermal and Fluid Science*, 53, 259-268 (2014).
137. Vallinayagam, R., Vedharaj, S., Yang, W.M., Raghavan, V., Saravanan, C.G., Lee, P.S., Chua, K.J.E., and Chou, S.K., "Investigation of evaporation and engine characteristics of pine oil biofuel fumigated in the inlet manifold of a diesel engine", *Applied Energy*, 115, 514-524 (2014).
138. An, H., Yang, W.M., Maghbouli, A., Li, J., Chou, S.K., Chua, K.J., Wang, J.X., and Li, L., "Numerical investigation on the combustion and emission characteristics of a hydrogen assisted biodiesel combustion in a diesel engine", *Fuel*, 120, 186-194 (2014).
139. Li, J., Yang, W.M., An, H., Maghbouli, A., and Chou, S.K., "Effects of piston bowl geometry on combustion and emission characteristics of biodiesel fueled diesel engines", *Fuel*, 120, 66-73 (2014).
140. Vedharaj, S., Vallinayagam, R., Yang, W.M., Saravanan, C.G., Chou, S.K., Chua, K.J.E., and Lee, P.S., "Reduction of harmful emissions from a diesel engine fueled by kapok methyl ester using combined coating and SNCR technology", *Energy Conversion and Management*, 79, 581-589 (2014).
141. Ebna Alam Fahd, M., Lee, P.S., Chou, S.K., Yang, W.M., and Yap, C., "Experimental study and empirical correlation development of fuel properties of waste cooking palm biodiesel and its diesel blends at elevated temperatures", *Renewable Energy*, 68, 282-288 (2014).
142. Nian, V., Chou, S.K., Su, B., and Baully, J., "Life cycle analysis on carbon emissions from power generation - the nuclear energy example", *Applied Energy*, 118, 68-82 (2014).
143. Vallinayagam, R., Vedharaj, S., Yang, W.M., Saravanan, C.G., Lee, P.S., Chua, K.J.E., and Chou, S.K., "Impact of pine oil biofuel fumigation on gaseous emissions from a diesel engine", *Fuel Processing Technology*, 124, 44-53 (2014).
144. Vallinayagam, R., Vedharaj, S., Yang, W.M., Lee, P.S., Chua, K.J.E., and Chou, S.K., "Pine oil-biodiesel blends: A double biofuel strategy to completely eliminate the use of diesel in a diesel engine", *Applied Energy*, 130, 466-473 (2014).
145. An, H., Yang, W., Li, J., Maghbouli, A., Chua, K.J., and Chou, S.K., "A numerical modelling on the emission characteristics of a diesel engine fueled by diesel and biodiesel blend fuels", *Applied Energy*, 130, 458-465 (2014).
146. Mohan, B., Yang, W., Raman, V., Sivasankaralingam, V., and Chou, S.K., "Optimization of biodiesel fueled engine to meet emission standards through varying nozzle opening pressure and static injection timing", *Applied Energy*, 130, 450-457 (2014).
147. Nian, V. and Chou, S.K., "The state of nuclear power two years after Fukushima - The ASEAN perspective", *Applied Energy*, 136, 838-848 (2014).
148. Mohan, B., Yang, W., Yu, W., Tay, K.L., and Chou, S.K., "Numerical investigation on the effects of injection rate shaping on combustion and emission characteristics of biodiesel fueled CI engine", *Applied Energy*, 160, 737-745 (2014).
149. Li, J., Yang, W.M., An, H., and Chou, S.K., "Modeling on blend gasoline/diesel fuel combustion in a direct injection diesel engine", *Applied Energy*, 160, 777-783 (2015).
150. Vedharaj, S., Vallinayagam, R., Yang, W.M., Chou, S.K., Chua, K.J.E., and Lee, P.S., "Performance emission and economic analysis of preheated CNSL biodiesel as an alternate fuel for a diesel engine", *International Journal of Green Energy*, 12, 359-367 (2015).

Selected Conference Presentations

"Intellectual property and climate change", *Regional Conference on Intellectual Property and Economic Development: Challenges and Opportunities*, World Intellectual Property Organization (WIPO) and the ASEAN Studies Centre, Institute of Southeast Asian Studies (ISEAS), Singapore, February 2011.

"Teaching energy efficiency – context, concepts and challenges", *National Energy Efficiency Conference*, National Energy Agency, Singapore, September 2012.

"Singapore's pathway to a low carbon future", *Invited plenary lecture, 4th International Conference on Sustainable Energy and Environment (SEE 2012) – A Paradigm Shift to a Low Carbon Society*, Bangkok, February 2012.

“Singapore’s national strategy for low-emissions transport development”, *Invited Keynote (7), 2nd Annual Conference of Asian-European Energy Policy Research Network: Transition towards Low Carbon Transport: Asian and European Perspectives*, Beijing University of Technology, Beijing, November 2013.

“Overview of ASEAN’s energy needs and challenges”, *Invited lecture, Energy Policy Roundtable 2012*, Todai Policy Alternatives Research Institute, The University of Tokyo, Tokyo, April 2012.

“Myanmar Energy Development – an ASEAN Perspective”, *Invited lecture, Joint Conference on Energy Integration in Myanmar – A View from Abroad*, Energy Research Institute (ERI), Chulalongkorn University and Todai Policy Alternative Research Institute (PARI), The University of Tokyo, Bangkok, June 2013.

“Non-traditional security challenges – energy security”, *MFA Diplomatic Academy, Foreign Service Advanced Programme*, Singapore, May 2014.

“Energy efficient and environmentally friendly transportation”, *Invited lecture, Applied Energy Expert Forum*, Kunming, May 2014.

“Sustainable high performance façades for the tropics”, *International Green Building Conference*, Building and Construction Authority, Singapore, Sept 2014.

“System Modelling for Energy and Environmental Research”, *The 2nd Workshop on Frontier Modeling of Energy & Environment (FMEE)*, Energy & Resource Systems Engineering Chapter, Systems Engineering Society of China, Nanjing University of Aeronautics and Astronautics (NUAA), Nanjing, May 2016.

“Enhanced ETTV/RETV formulation for energy efficient building envelopes - a collaboration project of BCA, NUS, and Technoform”, *International Green Building Conference*, Building and Construction Authority, Singapore, 2016, September 2016.