

Curriculum Vitae

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S.K. Chou obtained a B.Eng. in Mechanical Engineering from the University of Singapore, and a D.E.A. and Dr-Ing. from the **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. From 1990 to 1992, he was seconded to the **Science Council of Singapore** as its executive director and then to the **National Science and Technology Board**, the predecessor agency of A*STAR, as its founding executive director. In 1991, NSTB launched Singapore's first national technology plan. In 1992, he helped establish the NUS **Industry and Technology Relations Office (INTRO)**, and was its 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. Between 2007 and 2017, he was the founding executive director of the **NUS Energy Studies Institute**.

Since 1981, he had served in various capacities in the **ASEAN Committee on Science and Technology (COST, subsequently COSTI)** and its subsidiary groups such as National COST Chair, Chairman of the **ASEAN Sub-Committee on Infrastructure and Resources Development**, and Editor of the **ASEAN Journal on Science and Technology for Development**. In 1985, he received the **ASEAN Science and Technology Meritorious Service Award**. From 2012 to 2016, he was Chairman of the **Advisory Board of the ASEAN Plan of Action on Science and Technology**. From 2016 till end-June 2020, he served on the **Board of Advisors of the ASEAN Committee on Science, Technology and Innovation**. S.K. Chou was the author of the **ASEAN Plan of Action on Science & Technology** of the ASEAN Committee on Science, Technology and Innovation in 1994 and 2001.

S.K. Chou is an Honorary Fellow and President Emeritus of the **Institution of Engineers, Singapore (IES)**, and a Fellow of the **American Society of Heating, Refrigerating and Air-Conditioning Engineers**. He is also 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 served as Chairman of the **Advisory Committee of the School of Mechanical and Aeronautical Engineering** (2003 to 2018) and on the **Board of Governors** (2006 to 2015) of Singapore Polytechnic.

He is presently Chairman of the Technical Committee of the **Cooling Energy Science and Technology Singapore (CoolestSG) Consortium** at NUS. He is also Chairman, since 2001, of the **Technical Evaluation Panel on the Grant for Energy Efficiency Technology (GREET)** of the Singapore National Environment Agency and the Economic Development Board. Prof Chou is credited with designing the **Envelope Thermal Transfer Value (ETTV)** and the **Residential Envelope Transmittance Value (RETV)** energy standards used today in the Singapore Green Mark mandatory building certification scheme. He is an editor of the Elsevier published journal, **Applied Energy**, and serves on the editorial committee of **Advances in Applied Energy**.

Education

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

Positions Held

1. 1980-2018 Lecturer, Senior Lecturer, Associate Professor, Professor, Department of Mechanical Engineering, NUS.
2. 1990-1992 Executive Director, Science Council of Singapore, and Executive Director, National Science and Technology Board.
3. 1992-2000 Director, Industry and Technology Relations Office, NUS.
4. 1995-2002 Managing Director, NUS Technology Holdings Pte Ltd.
5. 1998-2003 Head, Department of Mechanical Engineering, National University of Singapore.
6. 2003-2008 Vice-Dean, External & Industry Relations Office, Faculty of Engineering, National University of Singapore.
7. 2007-2009 and
2010-2017 Executive Director, Energy Studies Institute, NUS.
8. 2018-2021 Chairman, Technical Committee, Cooling Energy Science and Technology Singapore (CoolestSG) Consortium at NUS.

Professional and Public Engagements (Current)

1. Chairman, Technical Evaluation Panel, Grant for Energy Efficiency Technology (GREET), Singapore National Environment Agency and the Economic Development Board.
2. Fellow, American Society for Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).
3. Honorary Fellow, Emeritus President, Institution of Engineers, Singapore (IES).
4. Fellow, ASEAN Academy of Engineering and Technology (AAET).
5. Fellow, Singapore Academy of Engineering (SAEng).
6. Fellow, Energy Institute (EI), UK.
7. Honorary Fellow, ASEAN Federation of Engineering Organisations (AFEO).
8. Editor, Applied Energy Journal.
9. Editorial board member, Advances in Applied Energy Journal.

Research Interests:

Energy performance of buildings and building envelopes; thermal environmental engineering; micro thrusters and propulsion for application in micro satellites; combustion at the micro scale and MEMS for portable power; jet mixing flows for refrigeration and cooling; and energy efficiency, management and policy.

International Refereed Journal Publications

1. Zheng, Wandong; Hu, Jingfan; Wang, Zhaoying; Li, Jinbo; Fu, Zheng; Li, Han; Jurasz, Jakub; Chou, S.K.; & Yan, Jinyue (2021). COVID-19 impact on operation and energy consumption of heating, ventilation and air-conditioning (HVAC) systems. *ADVANCES IN APPLIED ENERGY*, 3, 31 May 2021. doi.org/10.1016/j.adapen.2021.100040.
2. He, Z., Hong, T., & Chou, S.K. (2021). A framework for estimating the energy-saving potential of occupant behaviour improvement. *APPLIED ENERGY*, 287, 1 April 2021. doi: [10.1016/j.apenergy.2021.116591](https://doi.org/10.1016/j.apenergy.2021.116591).
3. Riaz, F., Lee, P.S., & Chou, S.K. (2020). Thermal modelling and optimization of low-grade waste heat driven ejector refrigeration system incorporating a direct ejector model. *APPLIED THERMAL ENERGY*, 167, 25 February 2020. doi: 10.1016/j.applthermaleng.2019.114710.
4. Yan, J., Sun, F., Chou, S.K., Desideri, U., Li, H., Campana, P.E., & Xiong, R. (2018). Transformative innovations for a sustainable future, *APPLIED ENERGY*, 231, pp. 1383-1388. doi: 10.1016/j.apenergy.2017.08.155
5. Chou, S.K., Costanza, R., Earis, P., Hubacek, K., Li, B.L., Lu, Y., Span, R., Wang, H., Wu, J., Wu, Y., & Yan, J.J. (2018). Priority areas at the frontiers of ecology and energy, *ECOSYSTEM HEALTH AND SUSTAINABILITY*, Vol. 4, 2018, 243-246. doi: [10.1080/20964129.2018.1538665](https://doi.org/10.1080/20964129.2018.1538665)
6. Chua, K. J., Chou, S. K., & Islam, M. R. (2018). On the experimental study of a hybrid dehumidifier comprising membrane and composite desiccants. *APPLIED ENERGY*, 220, 934-943. doi:[10.1016/j.apenergy.2017.12.116](https://doi.org/10.1016/j.apenergy.2017.12.116)
7. Ranjan, R., Karthikeyan, K., Riaz, F., & Chou, S.K. (2018). Cold gas propulsion microthruster for feed gas utilization in micro satellites. *APPLIED ENERGY*, 220, 921-933. doi: [10.1016/j.apenergy.2018.03.040](https://doi.org/10.1016/j.apenergy.2018.03.040)
8. Yan, J., Sun, F., Chou, S. K., Desideri, U., Li, H., Campana, P. E., & Xiong, R. (2017). Transformative Innovations for a Sustainable Future. *APPLIED ENERGY*, 204, 867-872. doi:10.1016/j.apenergy.2017.09.010
9. Yan, J., Chou, S. K., Chen, B., Sun, F., Jia, H., & Yang, J. (2017). Clean, affordable and reliable energy systems for low carbon city transition. *APPLIED ENERGY*, 194, 305-309. doi:[10.1016/j.apenergy.2017.03.066](https://doi.org/10.1016/j.apenergy.2017.03.066)
10. Cui, X., Mohan, B., Islam, M. R., Chou, S. K., & Chua, K. J. (2017). Energy performance evaluation and application of an air treatment system for conditioning building spaces in tropics. *APPLIED ENERGY*, 204, 1500-1512. doi:[10.1016/j.apenergy.2017.03.067](https://doi.org/10.1016/j.apenergy.2017.03.067)
11. Yan, J., Sun, F., Chou, S. K., Desideri, U., Li, H., Campana, P. E., & Xiong, R. (2017). Transformative innovations for a sustainable future. *APPLIED ENERGY*, doi:[10.1016/j.apenergy.2017.08.155](https://doi.org/10.1016/j.apenergy.2017.08.155)
12. Yan, J., Shamin, T., Chou, S. K., Desideri, U., & Li, H. (2017). Clean, efficient and affordable energy for a sustainable future. *APPLIED ENERGY*, 185, 953-962. doi:[10.1016/j.apenergy.2016.06.005](https://doi.org/10.1016/j.apenergy.2016.06.005)
13. Tay, K. L., Yang, W., Li, J., Zhou, D., Yu, W., Zhao, F., Chou, S.K., & Mohan, B. (2017). Numerical investigation on the combustion and emissions of a kerosene-diesel fueled compression ignition engine assisted by ammonia fumigation. *APPLIED ENERGY*, 204, 1476-1488. doi:[10.1016/j.apenergy.2017.03.100](https://doi.org/10.1016/j.apenergy.2017.03.100)
14. Yan, J., Desideri, U., Chou, S. K., & Li, H. (2016). Energy solutions for a sustainable world. *INTERNATIONAL JOURNAL OF GREEN ENERGY*, 13(8), 757-758. doi:[10.1080/15435075.2016.1168648](https://doi.org/10.1080/15435075.2016.1168648)
15. Yan, J., Chou, S. -K., Desideri, U., & Lee, D. -J. (2016). Transition of clean energy systems and technologies towards a sustainable future (Part II). *APPLIED ENERGY*, 162, 1109-1113. doi:[10.1016/j.apenergy.2015.10.063](https://doi.org/10.1016/j.apenergy.2015.10.063)

16. Zhao, F., Yang, W., Tan, W. W., Yu, W., Yang, J., & Chou, S. K. (2016). Power management of vessel propulsion system for thrust efficiency and emissions mitigation. *APPLIED ENERGY*, 161, 124-132. doi:[10.1016/j.apenergy.2015.10.022](https://doi.org/10.1016/j.apenergy.2015.10.022)
17. Yan, J., Chou, S. -K., Desideri, U., & Lee, D. -J. (2015). Transition of clean energy systems and technologies towards a sustainable future (Part I). *APPLIED ENERGY*, 160, 619-622. doi:[10.1016/j.apenergy.2015.10.062](https://doi.org/10.1016/j.apenergy.2015.10.062)
18. Li, J., Yang, W. M., An, H., & Chou, S. K. (2015). Modeling on blend gasoline/diesel fuel combustion in a direct injection diesel engine. *APPLIED ENERGY*, 160, 777-783. doi:[10.1016/j.apenergy.2014.08.105](https://doi.org/10.1016/j.apenergy.2014.08.105)
19. Lee, D. -J., Yan, J., Chou, S. -K., & Desideri, U. (2015). Clean, efficient, affordable and reliable energy for a sustainable future Preface. *ENERGY CONVERSION AND MANAGEMENT*, 102, 1-3. doi:[10.1016/j.enconman.2015.05.059](https://doi.org/10.1016/j.enconman.2015.05.059)
20. Yan, J., Chou, S. K., & Desideri, U. (2015). The Editor's Best Reviewer awards for Applied Energy, 2014. *Applied Energy*, 150, A1. doi:[10.1016/j.apenergy.2015.05.009](https://doi.org/10.1016/j.apenergy.2015.05.009)
21. Vedharaj, S., Vallinayagam, R., Yang, W. M., Chou, S. K., Chua, K. J. E., & Lee, P. S. (2015). Performance Emission and Economic Analysis of Preheated CNSL Biodiesel as an Alternate Fuel for a Diesel Engine. *INTERNATIONAL JOURNAL OF GREEN ENERGY*, 12(4), 359-367. doi:[10.1080/15435075.2013.841162](https://doi.org/10.1080/15435075.2013.841162)
22. Yan, J., Chou, S. K., Dahlquist, E., & Li, H. (2015). Innovative Research For Sustainable Energy Systems. *INTERNATIONAL JOURNAL OF GREEN ENERGY*, 12(3), 191. doi:[10.1080/15435075.2014.958042](https://doi.org/10.1080/15435075.2014.958042)
23. Nian, V., & Chou, S. K. (2014). The state of nuclear power two years after Fukushima - The ASEAN perspective. *APPLIED ENERGY*, 136, 838-848. doi:[10.1016/j.apenergy.2014.04.030](https://doi.org/10.1016/j.apenergy.2014.04.030)
24. Yan, J., Chou, S. K., Desideri, U., & Xia, X. (2014). Innovative and sustainable solutions of clean energy technologies and policies (Part II). *APPLIED ENERGY*, 136, 756-758. doi:[10.1016/j.apenergy.2014.09.078](https://doi.org/10.1016/j.apenergy.2014.09.078)
25. Vedharaj, S., Vallinayagam, R., Yang, W. M., Chou, S. K., & Lee, P. S. (2014). Effect of adding 1,4-Dioxane with kapok biodiesel on the characteristics of a diesel engine. *APPLIED ENERGY*, 136, 1166-1173. doi:[10.1016/j.apenergy.2014.04.012](https://doi.org/10.1016/j.apenergy.2014.04.012)
26. Mohan, B., Yang, W., Yu, W., Tay, K. L., & Chou, S. K. (2015). Numerical investigation on the effects of injection rate shaping on combustion and emission characteristics of biodiesel fueled CI engine. *APPLIED ENERGY*, 160, 737-745. doi:[10.1016/j.apenergy.2015.08.034](https://doi.org/10.1016/j.apenergy.2015.08.034)
27. Yan, J., Chou, S. K., Desideri, U., & Hunt, S. (2014). The Editor's Best Reviewer awards for Applied Energy, 2013. *Applied Energy*, 130. doi:[10.1016/j.apenergy.2014.07.016](https://doi.org/10.1016/j.apenergy.2014.07.016)
28. Vallinayagam, R., Vedharaj, S., Yang, W. M., Lee, P. S., Chua, K. J. E., & Chou, S. K. (2014). Pine oil-biodiesel blends: A double biofuel strategy to completely eliminate the use of diesel in a diesel engine. *APPLIED ENERGY*, 130, 466-473. doi:[10.1016/j.apenergy.2013.11.025](https://doi.org/10.1016/j.apenergy.2013.11.025)
29. Mohan, B., Yang, W., Raman, V., Sivasankaralingam, V., & Chou, S. K. (2014). Optimization of biodiesel fueled engine to meet emission standards through varying nozzle opening pressure and static injection timing. *APPLIED ENERGY*, 130, 450-457. doi:[10.1016/j.apenergy.2014.02.033](https://doi.org/10.1016/j.apenergy.2014.02.033)
30. Yan, J., Chou, S. K., Desideri, U., & Xia, X. (2014). Innovative and sustainable solutions of clean energy technologies and policies (Part I). *APPLIED ENERGY*, 130, 447-449. doi:[10.1016/j.apenergy.2014.05.052](https://doi.org/10.1016/j.apenergy.2014.05.052)
31. An, H., Yang, W., Li, J., Maghbouli, A., Chua, K. J., & Chou, S. K. (2014). A numerical modeling on the emission characteristics of a diesel engine fueled by diesel and biodiesel blend fuels. *APPLIED ENERGY*, 130, 458-465. doi:[10.1016/j.apenergy.2014.01.004](https://doi.org/10.1016/j.apenergy.2014.01.004)

32. Vallinayagam, R., Vedharaj, S., Yang, W. M., Saravanan, C. G., Lee, P. S., Chua, K. E., & Chou, S. K. (2014). Impact of pine oil biofuel fumigation on gaseous emissions from a diesel engine. *FUEL PROCESSING TECHNOLOGY*, 124, 44-53. doi:[10.1016/j.fuproc.2014.02.012](https://doi.org/10.1016/j.fuproc.2014.02.012)
33. Fahd, M. E. A., Lee, P. -S., Chou, S. K., Yang, W., & Yap, C. (2014). 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. doi:[10.1016/j.renene.2014.02.007](https://doi.org/10.1016/j.renene.2014.02.007)
34. Nian, V., Chou, S. K., Su, B., & Bauly, J. (2014). Life cycle analysis on carbon emissions from power generation - The nuclear energy example. *APPLIED ENERGY*, 118, 68-82. doi:[10.1016/j.apenergy.2013.12.015](https://doi.org/10.1016/j.apenergy.2013.12.015)
35. An, H., Yang, W. M., Maghbouli, A., Li, J., Chou, S. K., Chua, K. J., . . . Li, L. (2014). Numerical investigation on the combustion and emission characteristics of a hydrogen assisted biodiesel combustion in a diesel engine. *FUEL*, 120, 186-194. doi:[10.1016/j.fuel.2013.12.021](https://doi.org/10.1016/j.fuel.2013.12.021)
36. Li, J., Yang, W. M., An, H., Maghbouli, A., & Chou, S. K. (2014). Effects of piston bowl geometry on combustion and emission characteristics of biodiesel fueled diesel engines. *FUEL*, 120, 66-73. doi:[10.1016/j.fuel.2013.12.005](https://doi.org/10.1016/j.fuel.2013.12.005)
37. Vedharaj, S., Vallinayagam, R., Yang, W. M., Saravanan, C. G., Chou, S. K., Chua, K. J. E., & Lee, P. S. (2014). 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. doi:[10.1016/j.enconman.2013.12.056](https://doi.org/10.1016/j.enconman.2013.12.056)
38. Vallinayagam, R., Vedharaj, S., Yang, W. M., Raghavan, V., Saravanan, C. G., Lee, P. S., . . . Chou, S. K. (2014). Investigation of evaporation and engine characteristics of pine oil biofuel fumigated in the inlet manifold of a diesel engine. *APPLIED ENERGY*, 115, 514-524. doi:[10.1016/j.apenergy.2013.11.004](https://doi.org/10.1016/j.apenergy.2013.11.004)
39. Vedharaj, S., Vallinayagam, R., Yang, W. M., Chou, S. K., Chua, K. J. E., & Lee, P. S. (2014). 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. doi:[10.1016/j.expthermflusci.2013.12.018](https://doi.org/10.1016/j.expthermflusci.2013.12.018)
40. Jin, L. W., Lee, P. S., Kong, X. X., Fan, Y., & Chou, S. K. (2014). Ultra-thin minichannel LCP for EV battery thermal management. *APPLIED ENERGY*, 113, 1786-1794. doi:[10.1016/j.apenergy.2013.07.013](https://doi.org/10.1016/j.apenergy.2013.07.013)
41. Vallinayagam, R., Vedharaj, S., Yang, W. M., Saravanan, C. G., Lee, P. S., Chua, K. J. E., & Chou, S. K. (2014). Impact of ignition promoting additives on the characteristics of a diesel engine powered by pine oil-diesel blend. *FUEL*, 117, 278-285. doi:[10.1016/j.fuel.2013.09.076](https://doi.org/10.1016/j.fuel.2013.09.076)
42. Mohan, B., Yang, W., & Chou, S. K. (2014). Development of an accurate cavitation coupled spray model for diesel engine simulation. *ENERGY CONVERSION AND MANAGEMENT*, 77, 269-277. doi:[10.1016/j.enconman.2013.09.035](https://doi.org/10.1016/j.enconman.2013.09.035)
43. Mohan, B., Yang, W., & Chou, S. (2014). Cavitation in injector nozzle holes – a parametric study. *ENGINEERING APPLICATIONS OF COMPUTATIONAL FLUID MECHANICS*, 8(1), 70-81. doi:[10.1080/19942060.2014.11015498](https://doi.org/10.1080/19942060.2014.11015498)
44. Yan, J., Chou, S. K., Desideri, U., Tu, S. T., & Jin, H. G. (2013). Research, development and innovations for sustainable future energy systems. *APPLIED ENERGY*, 112, 393-395. doi:[10.1016/j.apenergy.2013.08.019](https://doi.org/10.1016/j.apenergy.2013.08.019)
45. Yan, J., Chou, S. K., & Dahlquist, E. (2013). Recent progress in sustainable energy systems. *INTERNATIONAL JOURNAL OF ENERGY RESEARCH*, 37(15), 1937-1938. doi:[10.1002/er.3107](https://doi.org/10.1002/er.3107)

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47. Yang, W. M., An, H., Chou, S. K., Chua, K. J., Mohan, B., Sivasankaralingam, V., . . . Li, J. (2013). Impact of emulsion fuel with nano-organic additives on the performance of diesel engine. *APPLIED ENERGY*, 112, 1206-1212. doi:[10.1016/j.apenergy.2013.02.027](https://doi.org/10.1016/j.apenergy.2013.02.027)
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52. Mohan, B., Yang, W., & Chou, S. K. (2013). Fuel injection strategies for performance improvement and emissions reduction in compression ignition engines-A review. *RENEWABLE & SUSTAINABLE ENERGY REVIEWS*, 28, 664-676. doi:[10.1016/j.rser.2013.08.051](https://doi.org/10.1016/j.rser.2013.08.051)
53. Balasubramanian, K., Lee, P. S., Teo, C. J., & Chou, S. K. (2013). Flow boiling heat transfer and pressure drop in stepped fin microchannels. *INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER*, 67, 234-252. doi:[10.1016/j.ijheatmasstransfer.2013.08.023](https://doi.org/10.1016/j.ijheatmasstransfer.2013.08.023)
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56. Pan, J., Yang, W., Chou, S., Li, D., Xue, H., Zhao, J., & Tang, A. (2013). Spray and combustion visualization of biodiesel in a direct injection diesel engine. *THERMAL SCIENCE*, 17(1), 279-289. doi:[10.2298/TSCI111211107P](https://doi.org/10.2298/TSCI111211107P)
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