

Prof. Dr. Surapong Chirarattananon

ศ. ดร. สุรพงศ์ จิระรัตนานนท์

EDUCATIONAL BACKGROUND

Year A.D. 1973 Ph.D. (Electrical Engineering), The University of Newcastle, Australia
Year A.D. 1970 M.Eng.Sc. (Electrical Engineering), Monash University, Australia
Year A.D. 1968 B.E. (Electrical Engineering), The University of New South Wales, Australia

RESEARCH INTEREST

Energy conservation in buildings, daylighting, electric supply industry structure, electric power quality, conservation of electrical energy which related to the research topics of this course / with the ability to advise on research works under the program.

WORK EXPERIENCE

- Head, Department of Electrical Engineering, Khonkaen University, 1975-1980.
- Director, Computer Center, Khonkaen University, 1980-1981.
- Dean, School of Energy and Materials, King Mongkut's Institute of Technology, Thonburi, 1987-1989.
- Professor, School of Environment, Resources and Development (SERD), Energy Program, AIT.
- Editor, International Energy Journal, published by RERIC, AIT, 2005 to 2006.
- Professor, Joint Graduate School of Energy and Environment (JGSEE), KMUTT.
- Editor, Journal of Sustainable Energy and Environment, published by JGSEE, KMUTT, 2010 to present.

PUBLICATIONS

International Journal

- Aryal, A., Chaiwiwatworakul, P., and Chirarattananon, S., (2023) An experimental study of thermal performance of the radiant ceiling cooling in office building in Thailand. Energy and Buildings. 283.March 2023
- Tongdee, D., Maneewan, S., Chirarattananon, S., and Punlek, C., (2022) Development and optimization of specially designed air ventilation system combined with thermoelectric and composite desiccant unit. International Journal of Power Electronics and Drive Systems. 13(3): p. 1912-1921.September 2022
- Ingabo, S.N., Chaiwiwatworakul, P., and Chirarattananon, S., (2022) Adjustable external horizontal shading slats for daylighting in office buildings in Thailand. Asia-Pacific Journal of Science and Technology. 27(1).Jan-Feb 2022
- Chawphongphang, N., Chaiwiwatworakul, P., and Chirarattananon, S., (2022) Global and Diffuse Solar Radiation Characteristics of Bangkok and its Forecast Using Artificial Neural Network. International Energy Journal. 22(4).December 2022
- Channoy, C., Maneewan, S., Chirarattananon, S., and Punlek, C., (2022) Development and Characterization of Composite Desiccant Impregnated with LiCl for Thermoelectric Dehumidifier (TED). Energies. 15(5).March 2022

- Aryal, A., Chaiwiwatworakul, P., Chirarattananon, S., and Wongsuwan, W., (2022) Subjective assessment of thermal comfort by radiant cooling in a tropical hot humid climate. *Energy and Buildings*. 254. January 2022
- Ibrahim, F., Chirarattananon, S., Rakkwamsuk, P., Chaiwiwatworakul, P., Chuanghote, S., and Hien, V.D., (2021) Solar Drive LiBr-H₂O Absorption Chiller Simulation to Analyze Two Backup Options. *International Energy Journal*. 21(3): p. 361-374. Sep
- Ibrahim, F., Chirarattananon, S., Rakkwamsuk, P., Chaiwiwatworakul, P., Chuanghote, S., and Hien, V.D., (2021) Controlling Temperature and Relative Humidity of Ventilation Air by using a Cooling Coil and Rotary Heat Exchangers. *International Energy Journal*. 21(3): p. 401-414. Sep
- Aryal, A., Chaiwiwatworakul, P., Chirarattananon, S., and Wattanakit, S., (2021) A Field Survey of Thermal Comfort in Air-conditioned Space in Songkhla's Hot Humid Climate. *Engineering Journal-Thailand*. 25(2): p. 235-244. Mar
- Tumm, P., Chirarattananon, S., Hien, V.D., Chaiwiwatworakul, P., and Rakkwamsuk, P., (2017) Formulation of an OTTV for walls of bedroom in Thailand. *Applied Thermal Engineering*. 113: p. 334-344. February 2017
- Mettanant, V., Chaiwiwatworakul, P., and Chirarattananon, S., (2017) A model of Thai's sky luminance distribution based on reduced CIE standard sky types. *Renewable Energy*. 103: p. 739-749. April, 2017
- Taengchum, T., Chirarattananon, S., Exell, R.H.B., and Chaiwiwatworakul, P., (2014) Tracing of daylight through circular light pipes with anidolic concentrators. *Solar Energy*. 110: p. 818-829. December 2014
- Bukoski, J., Gheewala, S.H., Mui, A., Smead, M., and Chirarattananon, S., (2014) The life cycle assessment of a solar-assisted absorption chilling system in Bangkok, Thailand. *Energy and Buildings*. 72(0): p. 150-156. April, 2014
- Tumm, P., Chirarattananon, S., Hien, V.D., Chaiwiwatworakul, P., and Rakkwamsuk, P., (2013) Thermal performance of insulated walls enclosing residential spaces in Thailand. *Energy and Buildings*. 61(0): p. 323-332. June 2013
- Taengchum, T., Chirarattananon, S., Exell, R.H.B., Kubaha, K., and Chaiwiwatworakul, P., (2013) A study on a ventilation stack integrated with a light pipe. *Applied Thermal Engineering*. 50(1): p. 546-554. January 2013
- Chaiwiwatworakul, P. and Chirarattananon, S., (2013) Luminous efficacies of global and diffuse horizontal irradiances in a tropical region. *Renewable Energy*. 53(0): p. 148-158. May 2013
- Chaiwiwatworakul, P. and Chirarattananon, S., (2013) A double-pane window with enclosed horizontal slats for daylighting in buildings in the tropics. *Energy and Buildings*. 62(0): p. 27-36. July 2013
- Chirarattananon, S., Hien, V.D., and Tumm, P., (2012) Thermal performance and cost effectiveness of wall insulation under Thai climate. *Energy and Buildings*. 45: p. 82-90. February 2012
- Samuhatananon, S., Chirarattananon, S., and Chaiwiwatworakul, P., (2011) An Experimental and Analytical Study of Transmission of Daylight Through Circular Light Pipes. *LEUKOS: The Journal of the Illuminating Engineering Society of North American*. 7(4): p. 197-199. April, 2011

- Chirarattananon, S.C., P.; Hien, V. D.; Rakkwamsuk, P.; Kubaha, K., (2010) Assessment of energy savings from the revised building energy code of Thailand. *Energy*. 35(4): p. 1741-1753 April 2010
- Chirarattananon, S.C., P., (2009) Application of Evolutionary Computation for Identification LEUKOS 5(2): p. 101-117. October 2009
- Chaiwiwatworakul, P.C., Surapong; Rakkwamsuk, Pattana, (2009) Application of automated blind for daylighting in tropical region. *Energy Conversion and Management*. 50(12): p. 2927-2943. December 2009

International Conference

- Aryal, A., Chaiwiwatworakul, P., and Chirarattananon, S. (2021) Experimental Observation on Air-Conditioning Using Radiant Chilled Ceiling in Hot Humid Climate in International Conference on Environmental Engineering and Green Energy Technology (ICEEGET 2021). Bangkok Thailand. March 8-9, 2021.
- Aryal, A., Chaiwiwatworakul, P., and Chirarattananon, S. (2021) A simulation study of radiant chilled ceiling with dedicated outdoor air system for office buildings in Thailand. in International Conference on Engineering and Industrial Technology (ICEIT 2020). Pattaya Thailand. September 11 - 13, 2020.
- Tumm, P., Chirarattananon, S., Prodkhornburi, R., Mulper, K., kongbang, T., and Kongtawee, W. (2018) Validation of building energy consumption model of Thai building energy code. in 7th International Conference on Sustainable Energy and Environment (SEE2018). Bangkok, Thailand. 28-30 November.
- Lertboonkankit, P., Chirarattananon, S., and Hien, V.D. (2018) Building energy simulation (BESim) program. in 7th International Conference on Sustainable Energy and Environment (SEE2018). Bangkok, Thailand. 28-30 November.
- Keeratianant, S. and Chirarattananon, S. (2018) Simulation and investigation of the solar absorption cooling system in Thailand. in 7th International Conference on Sustainable Energy and Environment (SEE2018). Bangkok, Thailand. 28-30 November.
- Ibrahim, F. and Chirarattananon, S. (2018) Simulation of a dedicated outdoor air system. in 7th International Conference on Sustainable Energy and Environment (SEE2018). Bangkok, Thailand. 28-30 November.
- Chirarattananon, S., Lertboonkankit, P., and Srimuk, J. (2018) An enhanced roof-mounted light pipe supplemented with LED lamps. in 7th International Conference on Sustainable Energy and Environment (SEE2018). Bangkok, Thailand. 28-30 November.
- Chirarattananon, S., Hien, V.D., Srirungrueng, P., and Charoenkankar, S. (2018) An experimental validation of BESim simulation of daylight in a room transmitted through a vertical shading system in 7th International Conference on Sustainable Energy and Environment (SEE2018). Bangkok, Thailand. 28-30 November.
- Tumm, P. C., Surapong Rakkwamsuk, Pattana (2016) Assessment of energy saving potentials from effective implementation of house energy and carbon rating scheme in Thailand. In: 6th International Conference on Sustainable Energy and Environment (SEE2016), Bangkok, Thailand.
- Tumm, P., Chirarattananon, S., Duc Hien, V., Chaiwiwatworakul, P. & Rakkwamsuk, P. (2016) Development of an OTTV for walls of bedroom. In: 6th International Conference on Sustainable Energy and Environment (SEE2016), Bangkok, Thailand.

- Taengchum, T. C., Surapong (2016) Ray tracing method for simulating light transmission through facade mounted-pipes with anidolic concentrator. In: 6th International Conference on Sustainable Energy and Environment (SEE2016), Bangkok, Thailand.
- Taengchum, T. & Chirarattananon, S. (2016) Light transmission from two opposite sides of a building through a facade mounted-pipe. In: 6th International Conference on Sustainable Energy and Environment (SEE2016), Bangkok, Thailand.
- Mettanant, V. & Chaiwiwatworakul, P. C., Surapong (2016) A method of automated blind system to control interior daylight in buildings. In: 6th International Conference on Sustainable Energy and Environment (SEE2016), Bangkok, Thailand.
- Lertboonkankit, P. & Chirarattananon, S. (2016) Experimental investigation on a desiccant air dehumidifier regenerated by hot and cold water heater. In: 6th International Conference on Sustainable Energy and Environment (SEE2016), Bangkok, Thailand.
- Tumm, P., Chirarattananon, S., Rakwamsuk, P., Chaiwiwatworakul, P., Chuangchote, S. & Chiarakorn, S. (2015) Influencing Factors of Energy Use of Low and Medium Income Households in Thailand. In: 2015 International Conference on Alternative Energy in Developing Countries and Emerging Economies (2015 AEDCEE), Bangkok, Thailand.
- Taengchum, T. & Chirarattananon, S. (2015) Ray Tracing Method of Light Through Rectangular Light Pipe with Bends. In: 2015 International Conference on Alternative Energy in Developing Countries and Emerging Economies (2015 AEDCEE), Bangkok, Thailand.
- Pichet Lertboonkankit and Surapong Chirarattananon (2015) A Study of a Desiccant Air Dehumidifier Regenerated by Hot and Cold Water Heater. in The 9th South East Asia Technical University Consortium (SEATUC2015). SUT, Nakhon Rachasima, Thailand. 27-30 July 2015
- N Inklap, P Chaiwiwatworakul, S Chuangchote, P Rakkwamsuk and C Chirarattananon (2015) Performance Assessment of Dedicated Outdoor Air System for Office Building in Thailand. in 2015 International Conference on Alternative Energy in Developing Countries and Emerging Economies (AEDCEE2015). Bangkok, Thailand 28-29 May 2015
- Satinee Wattanakit, Surapong Chirarattananon and Pipat Chaiwiwatworakul (2014) Comfort assessment of radiant cooling in building in tropical climate. in 5th International Conference on Sustainable Energy and Environment (SEE2014). Bangkok, Thailand. November 19-21, 2014
- Preecha Tumm, Surapong Chirarattananon, Pattana Rakwamsuk, Pipat Chaiwiwatworakul and Surawut Chuangchote (2014) A Survey of Housing Features and Thermal Comfort of Medium and Low Income Earners in Thailand. in 5th International Conference on Sustainable Energy and Environment (SEE 2014). Bangkok, Thailand. November 19-21, 2014
- Wannakanit Supachart, Thanyalak Taengchum, Surapong Chirarattananon, Pattana Rakwamsuk and Pipat Chaiwiwatworakul (2014) A study of transmission and illumination of light through rectangular light pipes with bends. in 5th International Conference on Sustainable Energy and Environment (SEE2014). Bangkok, Thailand. November 19-21, 2014
- Furugaan Ibrahim and Surapong Chirarattananon (2014) Simulation of a Solar Absorption Chiller System. in 3rd International Renewable Energy and Environment Conference. Kuala Lumpur, Malaysia. July 4-6, 2014

- Surawut Chuangchote, Pipat Chaiwiwatworakul, Siriluk Chiarakorn, Pattana Rakkwamsuk and Surapong Chirarattananon (2014) Reducing Energy Consumption Cost and Greenhouse Gas Emission for Tropical Low-income Housing: Thailand Contribution. in 5th International Conference on Sustainable Energy and Environment (SEE 2014) Bangkok, Thailand. November 19-21, 2014
- Surapong Chirarattananon, Pipat Chaiwiwatworakul and Pattana Rakkwamsuk (2014) Energy consumption and GHG emission of Thailand's residential sector. in 5th International Conference on Sustainable Energy and Environment (SEE 2014) Bangkok, Thailand. November 19-21, 2014
- Taengchum, T., Chirarattananon, S. & Muharto, E. (2013) A Study of Daylight Transmission Through Tubular Light Pipes with Anidonic Concentrator. In: The 7th LUX PACIFIC Conference, Bangkok, Thailand.
- Siwaporn Meka, Pipat Chaiwiwatworakul and Surapong Chirarattananon (2013) An Experimental and Simulation Study of Daylighting in Atrium Building in a Tropics. in 2013 International conference on Alternative Energy in Developing Countries and Emerging Economies (2013 AEDCEE). Bangkok, Thailand. 30-31 May 2013
- Rut Praditwattanakit, Pipat Chaiwiwatworakul, and Surapong Chirarattananon. (2013) Anidolic Concentrator to Enhance the Daylight Use in Tropical Buildings. in 2013 International Conference on Alternative Energy in Developing Countries and Emerging Economies (2013 AEDCEE). 30-31 May 2013. Bangkok, Thailand.
- Nipaporn Nutprasert, Pipat Chaiwiwatworakul, Satinee Wongkee, and Surapong Chirarattananon. (2013) Radiant Cooling with Dehumidified Air Ventilation for Thermal Comfort in Buildings in Tropical Climate. in International Conference on Alternative Energy in Developing Countries and Emerging Economies (2013 AEDCEE). 30-31 May 2013. Bangkok, Thailand.
- Preecha Tumm, Surapong Chirarattananon, and Vu Duc Hien. (2012) An Experimental and Simulation Study of Performance of Insulation on Walls Enclosing Residential Spaces. in 4th International Conference on Sustainable Energy & Environment (SEE 2011): A Paradigm Shift to Low Carbon Society. 27-29 February 2012. Bangkok, Thailand.
- Atitaya Saradphun, Pipat Chaiwiwatworakul, and Surapong Chirarattananon. (2012) An Experimental and Simulation Study of Daylighting in Atrium Building in the Tropics. in 4th International Conference on Sustainable Energy & Environment (SEE 2011): A Paradigm Shift to Low Carbon Society. 27-29 February 2012. Bangkok, Thailand.
- Wareerat Prasertsak, S Wongkee, Pipat Chaiwiwatworakul, and Surapong Chirarattananon. (2012) An Experimental Study of Radiant Cooling for Buildings in a Tropical Climate. in 2012 International Conference on Power and Energy Engineering (ICPEE 2012). September 1-2, 2012. Phuket, Thailand.
- Thongchai Pongtaveesap, Surapong Chirarattananon, R. H. B Exell, and Pipat Chaiwiwatworakul. (2012) Air Flow in a Hot Water Induced Stack Subject to Wind Disturbance. in 2012 International Conference on Power and Energy Engineering (ICPEE 2012). 1-2 September 2012. Phuket, Thailand.
- Desti Lidya, Surapong Chirarattananon, and Muhammad Faizal. (2012) Daylighting with Horizontal Shading Devices on South Facade in Tropical Area. in 6th South East Asian Technical University Consortium (SEATUC) Symposium. 6-7 March 2012. Bangkok, Thailand.

- Thitiya Kiewkem, Pipat Chaiwiwatworakul, and Surapong Chirarattananon. (2012) Desiccant Dehumidification System for Space Radiant Cooling in Tropical Climate. in International Conference on Power and Energy Engineering-ICPEE 2012. 1-2 Sep. 2012. Phuket, Thailand.
- Muhammad Fadhil Budiman, Surapong Chirarattananon, and Riman Sipahutar. (2012) A Study of Vertical Shading Devices for Daylighting Through Window in the Tropical. in 6Th South East Asian Technical University Consortium (SEATUC) Symposium. 6-7 March 2012. Bangkok, Thailand.
- Muhammad Fadhil Budiman, Surapong Chirarattananon, and Riman Sipahutar. (2012) A Study of Vertical Shading Devices for Daylighting on East Facade of Buildings in Tropical Region. in Sustainable Energy and Environmental Sciences (SEES 2012). 13-14 February 2012. Singapore.
- Karun Pantong, Surapong Chirarattananon, and Pipat Chaiwiwatworakul. (2011) Development of Energy Conservation Programs for Commercial Buildings based on Assessed Energy Saving Potentials in 9th Eco-Energy and Materials Science and Engineering Symposium (9th EMSES 2011) 25-28 May 2011. Chiang Rai, Thailand.
- C Nutphuang, S Chirarattananon, and V.D Hien. (2011) Application of CFD for Air Flow Analysis underneath Natural Ventilation with Forced Convection in Roof Attic. in WASET 2011 29-31 March 2011. Bangkok, Thailand.
- Jintaluk Kidhen, Surapong Chirarattananon, and Pipat Chaiwiwatworakul. (2011) Development of Energy Conservation Programs for Residential and Small Commercial Building in Thailand. in 2011 IEEE First Conference on Clean Energy & Technology (CET). 27-29 June 2011. Kuala Lumpur, Malaysia.
- C Nutphuang, Surapong Chirarattananon, and V.D Hien. (2010) A Novel Computer Program for Calculation of Three-Dimensional Heat Transfer and Air Flow in Buildings. in Renewable Energy 2010 : Advanced Technology Paths to Global Sustainability Joint with 4th International Solar Energy Society Conference, Asia Pacific Region. 27 June - 2 July 2010. Yokohoma, Japan.
- Banyat Mai-ngam and Surapong Chirarattananon. (2010) Application of Parameter-based Methodology for Monitoring Building Energy Consumption. in GMSTEC 2010: International Conference for a Sustainable Greater Mekong Subregion. 26-27 August 2010. Bangkok, Thailand.
- S Chirarattananon, V.D Hien, and P. Chaiwiwatworakul. (2010) Life Cycle Costs of Glazed and Unglazed Insulated and Un-insulated Building Walls Enclosing Spaces Used under Different Functions. in International Conference on Applied Energy. 21-23 April 2010. Singapore.
- Surapong Chirarattananon, Pipat Chaiwiwatworakul, V.D Hien, and Pattana Rugkwamsuk. (2010) Development of An Energy Rating Scheme for Existing Thai Commercial Buildings. in Renewable Energy 2010 Joint with 4th International Solar Energy Society Conference, Asia Pacific Region. 27 June - 2 July 2010. Yokohama, Japan.
- Bayu Susila, Surapong Chirarattananon, Chumnong Sorapipatana, Pattana Rukkwamsuk, and Pipat Chaiwiwatworakul. (2009) A Study on Energy Efficiency of Hotels in Bali. in World Renewable Energy Congress 2009 - Asia (WREC 2009-Asia). 19-22 May 2009. Bangkok, Thailand.

- Vu Duc Hien and Surapong Chirarattananon. (2009) Cost-Effectiveness of Insulations Used under Pitched Roofs in Thailand. in World Renewable Energy Congress 2009 - Asia (WREC 2009-Asia). 19-22 May 2009. Bangkok, Thailand.
- S. Chirarattananon, P. Rugkwamsuk, and D. Matuampunwong. (2009) Optimizing Benefits of Multiple-Slat Shading Device and High Performance Glazing on High-Rise Buildings in World Renewable Energy Congress 2009 - Asia (WREC 2009-Asia). 19-22 May 2009. Bangkok, Thailand.
- S. Chirarattananon, V.D. Hien, P. Chaiwiwatworakul, and P. Chirarattananon. (2009) Simulation of Transmission of Daylight through Cylindrical Light Pipes. in World Renewable Energy Congress 2009 - Asia (WREC 2009-Asia). 19-22 May 2009. Bangkok, Thailand.
- Surapong Chirarattananon and Pipat Chaiwiwatworakul. (2009) Evolutionary Computation: A New Method to Determine Parameter Values of Luminance Distribution Model for Tropical Sky in Sustainable Development to Save the Earth: Technologies and Strategies Vision 2050: (SDSE2008) 7-9 April 2009. Bangkok, Thailand.
- Surapong Chirarattananon. (2009) Application of Solar Energy in Buildings. in Second Renewable Energy Workshop between China and Thailand. 15-17 December 2009. Guangzhou, China.
- Pipat Chaiwiwatworakul and Surapong Chirarattananon. (2009) A Preliminary Study on Reducing of Representative Sets of CIE Standard Sky Luminance Distributions for Tropical Thai Sky. in World Renewable Energy Congress 2009 - Asia (WREC 2009-Asia). 19-22 May 2009. Bangkok, Thailand.

National Journal

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- Keeratianant, S., Chirarattananon, S., Nathakaranakule, A., and Rakkwamsuk, P. (2021) Cost-effectiveness of solar cooling for office and hypermarket KMUTNB: *International Journal of Applied Science and Technology*. 14(1): p. 31-43. Jan.-Mar. 2021
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- Verena Streitferdt and Surapong Chirarattananon (2015) Energy Efficiency Finance Support in Thailand: Lessons Learned from the Energy Efficiency Revolving Fund. *Journal of Sustainable Energy & Environment*. 6(1): p. 13-16. Jan.-Mar. 2015
- Thanyalak Taengchum, Surapong Chirarattananon, and R.H.B. Exell. (2012) A Study on a Combined Light Pipe and Solar-heated Ventilation Stack. *KKU Research Journal*. 17(2): p. 217-226. March-April 2012

National Conference

- Surapong Chirarattananon, Pipat Chaiwiwatworakul, Vu Duc Hien, and Pattana Rugkwamsuk. (2010) Development of an Energy Performance Rating Scheme for Existing Thai Commercial Buildings. in 1st National Energy Congress: Energy Crisis and Solutions for Thailand. 18-20 February 2010. Bangkok Exhibition and Convention Center, Thailand.