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Academic Affiliation

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Areas of Expertise (Keywords)

Energy conservation in buildings and industries
Energy efficient building envelope materials
Thin film technology
Electromagnetic theory

Education

D.Sc. in Electrophysics, The George Washington University, Washington, DC, U.S.A., 1999
M.Sc. in Electrophysics, The George Washington University, Washington, DC, U.S.A., 1993
M.Sc. in Energy Technology, King Mongkut's Institute of Technology Thonburi, Bangkok, Thailand, 1987
B.Sc. in Physics, Sri Nakharinwirot University, Bangsaen, Thailand, 1982

Professional Experience

Oct 2006 – Oct 2014 Dean, School of Energy, Environment and Materials, King Mongkut's University of Technology Thonburi, Bangkok, Thailand.

2003 – Oct 2006 Associate Dean for Research and Industrial Relations, School of Energy and Materials, King Mongkut's University of Technology Thonburi, Bangkok, Thailand.

2002 – 2003 Associate Dean for Academic, School of Energy and Materials, King Mongkut's University of Technology Thonburi, Bangkok, Thailand.

2000 – 2003 Chairman of Division of Materials Technology, School of Energy and Materials, King Mongkut's University of Technology Thonburi, Bangkok, Thailand.

Professional Services

1987 – 1990 Collaborated with the National Energy Authority of Thailand to advise government and private sectors on energy conservation in buildings and industries.

Collaborated with University of California at Berkeley to establish a standard computation for building thermal performance indices: OTTV and RTTV.

1997 – 1998 Teaching Assistance at School of Engineering and Applied Science, the George Washington University, Washington, DC, U.S.A.

2002 – 2004 Energy Expert in the cooperative project entitled "Adjustment to the Building Energy Code." The project was jointly funded by Department of Alternative Energy Development and Efficiency, Ministry of Energy, the Royal Thai Government and DANIDA.

- 2004 Co-investigator in the area of 'Solar energy' in the project entitled "Integrated Research Roadmap for Renewable Energy". The project was funded by Department of Alternative Energy and Development and Efficiency, Ministry of Energy.
- 2005 Technical expert in the project entitled "A Study for the Ministerial Regulation on the Promotion of Energy Efficient Glazing". The project was funded by Department of Alternative Energy and Development and Efficiency, Ministry of Energy.
- Co-investigator in the area of "Energy in Buildings" in the project entitled "An Integrated Research Roadmap for Sustainable Metropolis: Energy and Environment". The project was funded by National Research Council of Thailand.
- Principal investigator of the project entitled "Estimation of Solar Illumination from Solar Irradiance: Case Study of Bangkok Metropolitan Area". The project was funded by Energy Policy and Planning Office.
- 2006 - 2007 Co-investigator in area of 'Potential and Technical Assessment of the Energy Efficiency in Residential Home' in the cooperative research entitled "Policy Research for Development and Utilization of Renewable Energy and Energy Efficiency Enhancement". The project was funded by Thailand Research Fund.
- Principal investigator in the project entitled "Energy and Environment Management for Sustainable Community". The project was funded by Department of Alternative Energy and Development and Efficiency, Ministry of Energy.
- 2009 - 2011 Principal investigator in the project entitled 'Promotion and Regulation of Energy Conservation in New and Retrofitting Buildings'. The project was funded by Department of Alternative Energy and Development and Efficiency, Ministry of Energy.
- Principal investigator in the project entitled "Development of Training Curriculum for Energy Management for Person Responsible with Energy (PRE) for Designated Factory/Building. Sponsor: Department of Alternative Energy Development and Efficiency (DEDE)". The project was funded by Department of Alternative Energy and Development and Efficiency, Ministry of Energy.
- 2012 - 2013 Technical expert in the project entitled "A Study for the Establishment of Ministerial Regulation on the Promotion of Energy Efficient Window Frames and Doors". The project was funded by Department of Alternative Energy and Development and Efficiency, Ministry of Energy.
- Technical expert in the project entitled "A Study and Development for the Ministerial Regulation on the Promotion of Energy Efficient Roof Tile and Gypsum Board". The project was funded by Department of Alternative Energy and Development and Efficiency, Ministry of Energy.
- Technical advisor for the project entitled "A Research Roadmap for Clean Coal Technologies". The project was funded by EGAT-TRF Research Grant Program.
- Chairman for the technical committee revising Thailand Industrial Standards of Glass Used for Buildings

2014 - 2015 Chairman for the technical committee drafting Thailand Industrial Standards of heat strengthened and low-e glass.

Principle researcher in the project entitled "Energy and Low Income Tropical Housing". The project was in incorporation with Warwick University and funded by Engineering and Physical Sciences Research Council of the United Kingdom.

Principle researcher in the project entitled "Research and development and comparative studies of energy efficient air ventilation and circulation systems". The project was funded by EGAT-TRF funding program.

Publications

- (1) S. Jirathananon and P. Rugkwamsook, "Indices of Energy Services: A Comparative Study of Electrical Energy Utilization in Hotels and hospitals in Bangkok," Paper presented at the 4th ASEAN Energy Conference, Singapore, November 5-7, 1987.
- (2) S. Jirathananon and P. Rugkwamsook, "An Application of Simulation Software to Hotels and Hospitals in Bangkok," Paper presented at the 4th ASEAN Energy Conference, Singapore, November 5-7, 1987.
- (3) P. Rugkwamsook, "The OTTV Evaluation for Building Thermal Performance Assessment," Paper presented at the Workshop on Energy Conservation in Building and Industry, Impala Hotel, Bangkok, Thailand, August 22-26, 1988.
- (4) P. Rugkwamsook, "Introduction to Energy Audit," Paper presented at the Workshop on Energy Conservation in Building and Industry, Impala Hotel, Bangkok, Thailand, August 22-26, 1988.
- (5) P. Rugkwamsook, "The Energy Audit in Siam Motor Building: A Case Study," Paper presented at the Workshop on Energy Conservation in Building and Industry, Impala Hotel, Bangkok, Thailand, August 22-26, 1998.
- (6) S. Jirathananon, P. Rugkwamsook and J. Kaewkiew, "A Proposed Building Performance Standard for Thailand: An Introduction and Preliminary Assessment of the the Potential for Energy Management," Paper presented at the ASHRAE Far East Conference on Air Conditioning in Hot Climate, Kuala Lumpur, Malaysia, October 25-28, 1989.
- (7) P. Rugkwamsook and K. Kubaha, "A Feasibility Study of Thermal Energy Storage in Air Conditioned Buildings," Paper presented at the Energy Seminar, School of Energy and Materials, King Mongkut's Institute of Technology Thonburi, Bangkok, Thailand, May 1990.
- (8) F. Vajda, L. H. Bennett, L. J. Swartzendruber, P. Rugkwamsook, and E. Della Torre, "Experimental Validation of the Preisach Accommodation Properties of Recording Media," J. Appl. Phys., vol. 81, no. 8, pp. 1997.
- (9) C. E. Korman and P. Rugkwamsook, "Identification of Magnetic AfterEffect Model Parameters: Comparison of Experiment and Simulations," IEEE Trans. Magn., vol. 33, no. 5, pp. 4176-4178, 1997.
- (10) P. Rugkwamsook and C. E. Korman, "Identification of Magnetic Aftereffect Model Parameters: Temperature Dependence," IEEE Trans. Magn., vol. 34, no. 4, pp. 1863-1865, 1998.
- (11) P. Rugkwamsook, C.E. Korman, G. Bertotti and M. Pasquale, "Dependence of Aftereffect on Magnetization History," J. Appl. Phys., vol. 85, no. 8, pp. 4361-4363, 1999.
- (12) E. Della Torre, L.J. Swartzendruber, L.H. Bennett and P. Rugkwamsook, "Experimental test of the Preisach-Arrhenius model with temperature," Physica B, vol. 275, pp. 183 -186, 2000.
- (13) L. J. Swartzendruber, P. Rugkwamsook, L.H. Bennett and E. Della Torre, "Non-Arrhenius temperature dependence of magnetic after effect," J. Appl. Phys., vol. 87, no. 9, pp. 5684 - 5686, May 2000.
- (14) พัฒนา รักษาความสุข, อิทธิพลของค่าการสะท้อนรังสีอาทิตย์ต่ออุณหภูมิของผิวเคลือบสะท้อนความร้อน, วารสารประสิทธิภาพพลังงาน, มกราคม - มีนาคม 2544, หน้า 61 - 63.
- (15) พัฒนา รักษาความสุข, การเพิ่มสมรรถนะเชิงอุณหภูมิของหลังคาโดยใช้ผิวเคลือบสะท้อนความร้อน, วารสารประสิทธิภาพพลังงาน, เมษายน - มิถุนายน 2544, หน้า 32 - 36.
- (16) ประมวล ไตรภพกลาง, พัฒนา รักษาความสุข และ สมนึก ศิริสุนทร, การศึกษาผลกระทบของสารยึดเกาะในการเตรียมเม็ดผงอลูมินาแบบพ่นแห้ง สำหรับกระบวนการอัดขึ้นรูปแบบแห้ง, เอกสารประกอบการประชุมวิชาการทางด้านวิทยาศาสตร์และเทคโนโลยีแห่งประเทศไทย ครั้งที่ 2, 6 - 7 สิงหาคม 2545, มหาวิทยาลัยเกษตรศาสตร์
- (17) สมเจตน์ พันธุ์พันธ์, พัฒนา รักษาความสุข, ณรงค์ฤทธิ์ สมบัติสมภพ, วรธรรม อุ้นจิตติชัย, ชลาธร จันทร์ทัด, ศกุนี สมบูรณ์วิทย์ และ รุ่งอรุณ

ประเสริฐศักดิ์, การผลิตฉนวนความร้อนจากเส้นใยหินใยแก้วและน้ำยางธรรมชาติ, เอกสารประกอบการประชุมทางวิชาการ ครั้งที่ 41 มหาวิทยาลัยเกษตรศาสตร์, 3 - 7 กุมภาพันธ์ 2546, มหาวิทยาลัยเกษตรศาสตร์

- (18) Surapong Chirattananon, Pattana Rakkwamsuk, Juntakan Taweekun, A New Building Energy Code for Thailand, EIT Journal, April 2003, pp. 88 - 95.
- (19) Pattana Rakkwamsuk, Ploenpit Boochathum and Anusara Srisroal, Dependence of Reflectance of Solar Reflective Coating on Coating Vehicles and Thickness, Proceedings of the 29th Congress on Science and Technology of Thailand, October 2003.
- (20) Witit-anun, N, Rakkwamsuk, P and Limsuwan, P., Optical Properties of Thin Films of Ag, Au and Cu for Solar Energy Applications, Paper presented at 2nd International Workshop on Particle Beams & Plasma Interaction on Materials and 2nd Asia Symposium on Ion & Plasma Surface Finishing, Chiang Mai University, Thailand, November 25 - 27, 2004.
- (21) Witit-anun, N, Rakkwamsuk, P and Limsuwan, P., Thin Film Optical Design Software for Multilayered Filters, Paper presented at the SmartMat '04 International Conference on Smart Materials - Smart/Intelligent Materials and Nano Technology, Chiang Mai University, Thailand, December 1-3 2004.
- (22) Surapong Chirattananon, Pattana Rakkwamsuk, Vu Duc Hien, Juntakan Taweekun and Vichuda Mettanant, Development of a Building Energy Code for New Buildings in Thailand, Paper presented at the Joint International Conference on Sustainable Energy and Environment (SEE), Huahin, Thailand, December 1-3, 2004.
- (23) Kamol Aiempnanakit, Sayan Phudwat, Supattanapong Dumrongrattana and Pattana Rakkwamsuk, Optical and spectrally selective properties of silver-based low-emissivity thin film, Proceedings of 43rd Kasetsart University Annual Conference, Kasetsart University, Bangkok, February 1-4, 2005.
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- (25) Rakkwamsuk, P. and Chantad, C., Effect of Microstructure on Optical and Electrochromic Properties of Sol-Gel WO₃ Thin Films on ITO Coated Glass Substrate, Paper presented at the Third NRCT-KOSEF Electronic Materials and Device Processing Workshop, Rama Gardens Hotel, Bangkok, Thailand, February 15-16, 2005.
- (26) กมล เอี่ยมพานิช, สายัณห์ สุควัฒน์, สุวัฒน์พงษ์ คำรงค์รัตน์ และ พัฒนะ รักความสุข, อิทธิพลความหนาชั้นฟิล์มไททาเนียมที่มีต่อสมบัติทางแสงของระบบฟิล์มที่ให้ค่าปลดปล่อยทางรังสีต่ำ, การประชุมวิชาการวิทยาศาสตร์และเทคโนโลยี ครั้งที่ 4, มหาวิทยาลัยธรรมศาสตร์ ศูนย์รังสิต, 16 มีนาคม 2548.
- (27) Pattana Rakkwamsuk, Sayan Phudwat, Kamol Aiempnanakit, Supattanapong Dumrongrattana, Effects of Pulse Width on Hydrophilicity of Anatase TiO₂ Thin Film Prepared by DC Pulse Magnetron Sputtering, Paper presented at the 3rd International Conference on Materials for Advanced Technology, Singapore, July 3-8, 2005.
- (28) Pattana Rakkwamsuk and Nirun Witit-anun, Optical Properties and Thermal Emissivity of Silver Alloy Thin Films, Paper presented at the 3rd International Conference on Materials for Advanced Technology, Singapore, July 3-8, 2005.
- (29) Chanadda Pongpattana and Pattana Rakkwamsuk, Efficient algorithm and computing tool for shading calculation, Songklanakarin J. Sci. Technol., Vol.28, No. 2, Mar. - Apr. 2006.
- (30) S. Chirattananon, P. Rakkwamsuk, P. Chaiwiwatworakul, V. D. Hien, and K. Kubaha, Revised Building Energy Code of Thailand: Potential Energy and Power Demand Savings, Paper presented at the 2nd Energy Network of Thailand Conference, July 27-29, 2006.
- (31) S. Chirattananon, P. Rakkwamsuk, P. Chaiwiwatworakul and P. Pakdeepol, Evaluation of vertical illuminance and irradiance models against data from north Bangkok, Building and Environment, 42(2007), 3894-3940.
- (32) T. Thongkanluang, P. Limsuwan and P. Rakkwamsuk, Preparation of IR Reflective Green Pigment, Paper Presented at SmartMat '08 Conference, Chiangmai University, Apr 22-25, 2008.
- (33) S.Chirattananon*, P. Rakkwamsuk, and D. Matuampunwong, Balancing Benefits and Costs of the Use of High Performance Glazing on High-rise Buildings, Paper presented at Commemorative International Conference of the Occasion of the 4th Cycle Anniversary of KMUTT Sustainable Development to Save the Earth: Technologies and Strategies Vision 2050: (SDSE2008) 11-13 December 2008, Bangkok, Thailand.
- (34) Thadsanee Thongkanluang, Pichet Limsuwan and Pattana Rakkwamsuk, Preparation and Investigation of a Newly Developed NIR Reflective Green Pigment and Applications, Paper presented at Commemorative International Conference of the Occasion of the 4th Cycle Anniversary of KMUTT Sustainable Development to Save the Earth: Technologies and Strategies Vision 2050: (SDSE2008) 11-13 December 2008, Bangkok,

Thailand.

- (35) Nirun Witit-anun, Pattana Rakkwamsuk and Pichet Limsuwan, Design of Ag-alloy Thin Film as IR-Reflective Layer of Heat Mirror, Paper presented at Commemorative International Conference of the Occasion of the 4th Cycle Anniversary of KMUTT Sustainable Development to Save the Earth: Technologies and Strategies Vision 2050: (SDSE2008) 11-13 December 2008, Bangkok, Thailand.
- (36) Pattana Rakkwamsuk and Jarinya Yosthisud, Investigation of Electrochromism in an All-Solid Ta₂O₅/WO₃/ITO Electrochromic Device, Paper presented at the 3rdSEATUC Symposium, Universiti Teknologi Malaysia, February 25 -26, 2009
- (37) Pipat Chaiwiwatworakul, Surapong Chirarattananon, and Pattana Rakkwamsuk, Application of automated blind for daylighting in tropical region, *Energy Conversion and Management* 50 (2009) 2927–2943.
- (38) K.Aiempanakit, P.Rakkwamsuk, and S.Dumrongrattana, Influence of Continuous Depositions on Properties of ITO Films Prepared by DC Magnetron Sputtering, *Modern Physics Letters B*, Vol. 23, No. 26 (2009) 3157 – 3170.
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- (40) Surapong Chirarattananon, Pipat Chaiwiwatworakul, Vu Duc Hien and Pattana Rugkwamsuk, Development of an Energy Rating Scheme for Existing Thai Commercial Buildings, Paper presented at EIT Energy Conference, 2010
- (41) Phumiphat Kakham, Pattana Rakkwamsuk, Surapong Chirarattananon, and Pipat Chaiwiwatworakul, A Study of Appropriate Blinds for Maximum Benefit of Daylighting, Paper presented at the 6th Energy Network of Thailand Conference, May 5 - 7, 2010.
- (42) Thadsanee Thongkanluang, Pichet Limsuwan, and Pattana Rakkwamsuk, Preparation and using of high near-infrared reflective green pigments on ceramic glaze, *J. Ceram. Soc. Japan*, 118[5], 349-352, 2010.
- (43) Preecha Tammu, Surapong Chirarattananon, Vu Duc Hien, Pipat Chaiwiwatworakul, and Pattana Rakkwamsuk, 2013, "Thermal Performance of Insulated Walls Enclosing Residential Spaces in Thailand ", *Energy and Buildings*, [JIF 2012 : 2.679], Vol. 61, No. 2013, Jun, 2013, pp. 323 - 332.
- (44) Ranida Panthong, Pattana Rakkwamsuk, and Siriluk Chiarakorn, 2013. "Greenhouse Gas Emission from Condominium Construction in Thailand". *International Conference on Southeast Asian Weather and Climate "Asean Adapting to Climate Change"*, Nov 29, 2013, Le Meridien Conventional Hall, Chiang Mai, Thailand, pp., 2 - 6.
- (45) Arup Kumar Biswas, Boonrod Sajjakulnukit, and Pattana Rakkwamsuk, 2013. "Subsidy Policy Instruments for Rapid Growth of Photovoltaic Electricity Generation in Bangladesh". *International Conference on Alternative Energy in Developing Countries and Emerging Economies (2013 AEDCEE)*, 2013, Pullman Bangkok King Power Hotel, Bangkok,Thailand, pp., 171 - 176.
- (46) Akrawut Kronyut, Pattana Rakkwamsuk, and Kuskana Kubaha, 2013. "Electrical Conservation and Development of Energy Management System for Public Building". *5th RMUT NC & 4th RMUT IC*, Jun 15 - 16, 2013, Bangkok Convention Centre At Centralworld, Pathumwan, Bangkok, pp., 1 - 13.
- (47) Hathairat Loyprakhon, Siriluk Chiarakorn, and Pattana Rakkwamsuk, 2014. "Greenhouse Gas Emissions from Low Income House Construction: Case Study in Baan Eua-Arthorn Project in Thailand". *5th International Conference on Sustainable Energy and Environment (SEE 2014): Science, Technology and Innovation for ASEAN Green Growth*, 19-21 November 2014, Bangkok, Thailand, p. 4 pages.
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