

References

- [1] E. Achenbech, Three-dimensional and time-dependent simulation of a planar solid oxide fuel cell stack, **Journal of Power Sources** 49 (1994) 333-348.
- [2] P. Aguiar, C.S. Adjiman, N.P. Brandon, Anode-supported intermediate temperature direct internal reforming solid oxide fuel cell. I: model-based steady-state performance, **Journal of Power Sources** 138 (2004) 120-136.
- [3] W. Lehnert, J. Meusinger, F. Thom, Modelling of gas transport phenomena in SOFC anodes, **Journal of Power Sources** 87 (2000) 57-63.
- [4] H. Yakabe, M. Hishinuma, M. Uratani, I. Yasuda, Evaluation and modeling of performance of anode-supported solid oxide fuel cell, **Journal of Power Sources** 86 (2000) 423-431.
- [5] A. Pramuanjaroenkij, S. Kakac, X. Yang Zhou, Mathematical analysis of planar solid oxide fuel cells, **International Journal of Hydrogen Energy** 33 (2008) 2547-2565.
- [6] M. M. Hussain, X. Li, I. Dincer, Mathematical modeling of planar solid oxide fuel cells, **Journal of Power Sources** 161 (2006) 1012-1022.
- [7] T.X. Ho, P. Kosinski, A.C. Hoffmann, A. Vik, Numerical modeling of solid oxide fuel cells, **Chemical Engineering Science** 63 (2008) 5356-5365.
- [8] M. Suzuki, N. Shikazono, K. Fukagata, N. Kasagi, Numerical analysis of coupled transport and reaction phenomena in an anode-supported flat-tube solid oxide fuel cell, **Journal of Power Sources** 180 (2008) 29-40.
- [9] Y. Shi, N. Cai, and C. Li, Numerical modeling of an anode-supported SOFC button cell considering anodic surface diffusion, **Journal of Power Sources** 164 (2007) 639-648.
- [10] Y. Yang, X. Du, L. Yang, Y. Huang, H. Xian, Investigation of methane steam reforming in planar porous support, **Applied Thermal Engineering** 29 (2008) 1106-1113.
- [11] B.A. Haberman, J.B. Young, Three-dimensional simulation of chemically reacting gas flows in the porous support structure of an integrated-planar solid oxide fuel cell, **Int. Journal of Heat and Mass Transfer** 47 (2004) 3617-3629.
- [12] K. Nikooyeh, A.A. Jeje, J.M. Hill, 3D modeling of anode-supported planar SOFC with internal reforming of methane, **Journal of Power Sources** 171 (2007) 601-609.
- [13] J.-H. Koh, H.-K. Seo, Y.-S. Yoo, H.C. Lim, Consideration of numerical simulation parameters and heat transfer models for a molten carbonate fuel cell stack. **Chemical Engineering Journal** 87 (2002) 367-379.
- [14] S.J. Chan, K.A. Khor, Z.T. Xia, A complete polarization model of a solid oxide fuel cell and its sensitivity to the change of cell component thickness, **Journal of Power Sources** 93 (2001) 130-140.
- [15] A. Chaisantikulwat, C. Diaz-Goano, E.S. Meadows, Dynamic modeling and control of planar anode-supported solid oxide fuel cell, **Computers and Chemical Engineering** 32 (2008) 2365-2381.

- [16] D. Cui, L. Liu, Y. Dong, M. Cheng, Comparison of different current collecting modes of anode supported micro-tubular SOFC through mathematical modeling, **Journal of Power Sources** 174 (2007) 246-254.
- [17] D.H. Jeon, A comprehensive CFD model of anode-supported solid oxide fuel cells, **Electrochimica Acta** 54 (2009) 2727-2736.
- [18] G. Brus, J.S. Szmyd, Numerical modeling of radiative heat transfer in an internal indirect reforming-type SOFC, **Journal of Power Sources** 181 (2008) 8-16.
- [19] T.X. Ho, P. Kosinski, A.C. Hoffmann, A. Vik, Numerical analysis of a planar anode-supported SOFC with composite electrodes, **International Journal of Hydrogen Energy** 34 (2009) 3488-3499.
- [20] M. Ni, D.Y.C. Leung, M.K.H. Leung, Electrochemical modeling and parameteric study of methane fed solid oxide fuel cells, **Energy Conversion and Management**, 50 (2009) 268-278.
- [21] Y. Yang, X. Du, L. Yand, Y. Huang, H. Xian, Investigation of methane steam reforming in planar porous support of solid oxide fuel cell, **Applied Thermal Engineering** 29 (2009) 1106-1113.
- [22] U.G. Bossel, **Final report on SOFC data: facts and figures**, CH Swiss Federal Office of Energy, Berne, 1992.
- [23] M. Barrande, R. Bouchet, R. Denoyel, Tortuosity of porous particles, **Analytical Chemistry** 79 (2007) 9115-9121.
- [24] M. Matyka, A. Khalili, Z. Koza, Tortuosity-porosity relation in the porous media flow, **Physical Review E** 78 (2) (2008).
- [25] R. Reid, J.M. Prausnitz, B.E. Poling, **The properties of gases and liquids**, 4th ed., McGraw-Hill, New York, 1988.
- [26] P. Costamagna, C. Costa, V. Antonucci, Micro-modelling of solid oxide fuel cell electrodes, **Electrochimica Acta** 43 (1998) 375-394.
- [27] J.O.M.Ockris, A.K.N. Reddy, M. Gamboa-Aldeco, **Modern electrochemistry 2A, fundamentals of electrodicts**, Kluwer Academic/Plenum Publishers, New York, 2000.
- [28] P. Costamagna, A. Selimovic, M. Del Borghi, G. Agnew, Electrolchemical model of the integrated planar solid oxide fuel cell (IP-SOFC). **Chemical Engineering Journal** 102 (2004) 61-69.
- [29] Jong-Hee Kim, Rak-Hyun Song, Keun-Suk Song, Sang-Hoon Hyun, Dong- Ryul Shin, H. Yokokawa, Fabrication and characteristics of anode-supported flat-tube solid oxide fuel cell, **Journal of Power Sources** 122 (2003) 138-143.

Appendix A

Name Miss Kaokanya Sudaprasert
Office Division of Energy Technology,
 School of Energy, Environment and Materials,
 King Mongkut's University of Technology Thonburi,
 126 Pracha U-thit Rd., Bangmod, Thung-khru,
 Bangkok 10140, Thailand
 Tel: 66 (0) 2470 8695-99 ext. 114
 Fax: 66 (0) 2427 9062
E-mail kaokanya.sud@kmutt.ac.th

Publications

1. Sudaprasert, K., Travis, R.P. and Martinez-Botas, R.F. (2005). A Computational fluid dynamics model of a solid oxide fuel cell. *Proceedings of the Institution of Mechanical Engineers. Part A: Journal of Power and Energy*. 219, A3, pp.159-167.
2. Sudaprasert, K., Travis, R.P. and Martinez-Botas, R.F. (2010). A study of temperature distribution across a solid oxide fuel cell stack. *Journal of Fuel Cell Science and Technology*, vol. 7, 011002.

International proceedings

1. Sudaprasert, K., Travis, R.P. and Martinez-Botas, R.F. (2003). A computational fluid dynamics model of a SOFC. Ed. Singhal, S.C. and Dokiya, M., *the International Symposium on Solid Oxide Fuel Cells VIII*, 27 April 27 - 2 May 2003, Paris, France, The Electrochemical Society, New Jersey, pp. 1395-1402.
2. Thawichsri, K., Thepa, S., Wetchakama, S. and Sudaprasert, K. (2008). Hot water production using waste heat recovery from air conditioning incorporated with solar hot water system. *GMSARN International Conference on Sustainable Development: Issues and Prospects for the GMS*, 12-14 Nov. 2008, Kunming, China.
3. Nudol, C, Thepa, S., Sudaprasert, K. and Chimchavee, W. (2009). Development of rural community factor to own renewable energy resource in Thailand: case study on biogas energy. World Renewable Energy Congress 2009-Asia, *The 3rd International Conference on "Sustainable Energy and Environment (SEE 2009)"*, 19-22 May 2009, Bangkok, Thailand.
4. Jitjack, K., Thepa, S., Namprakaj, P. and Sudaprasert, K. (2009). A comparative study of fungi growth and quality of rubber sheet drying process using solar energy smoking, and integrated method. *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), 10-12 December 2008, Bangkok, Thailand.

5. Jitjack, K., Thepa, S., Namprakai, P. and Sudaprasert, K. (2009). A study of greenhouse potential for dDrying rubber together with smoking system. *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)*, 10-12 December 2008, Bangkok, Thailand.
6. Ubolsook, P., Thepa, S., Kasayapanand, N. and Sudaprasert K. (2009). Investigation of the Trends of Temperature and Heat Transfer through a Closed Greenhouse, *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)*, 10-12 December 2008, Bangkok, Thailand.

National proceedings

1. Khempila, J., Kasayapanand, N. and Sudaprasert, K., 2007, "Simulation of air flow within double-wall", *The 3rd Conference on ENERGY NETWORK OF THAILAND*, 23-25 May 2007, Baiyoke Sky Hotel, Bangkok.
2. Sirijaronesub, S., Sudaprasert, K. and Kasayapanand, N., 2007, "Study of the fuel flow behavior in the anode flow channel of a solid oxide fuel cell by Computational Fluid Dynamics technique", *The 3rd Conference on ENERGY NETWORK OF THAILAND*, 23-25 May 2007, Baiyoke Sky Hotel, Bangkok.
3. Chantratip Pattananivas, Nat Kasayapanand, Kaokanya Sudaprasert, 2007, "Numerical modeling of natural convection inside open double-ceiling system", *The 1st Conference on Energy, Environment and Materials*, 31 August 2007, The Twin Towers Hotel, Bangkok.
4. Namfon Owasirikul, Sirichai Thepa, Kaokanya Sudaprasert, 2007, "Development of photovoltaic module with compound parabolic concentrator", *The 1st Conference on Energy, Environment and Materials*, 31 August 2007, The Twin Towers Hotel, Bangkok.
5. Wattana Buapoom, Sirichai Thepa, Kaokanya Sudaprasert, 2007, "Solar energy assisted in biodiesel production", *The 1st Conference on Energy, Environment and Materials*, 31 August 2007, The Twin Towers Hotel, Bangkok.
6. Onwalun Lohitharn, Kaokanya Sudaprasert, Nat Kasayapanand, 2008, "A computational fluid dynamics modeling of double-flow solar solar air heater using extended surface", *The 4th Conference on ENERGY NETWORK OF THAILAND*, 14-16 May 2008, Rose Garden Riverside Hotel, Nakornpathom.

7. Tanyaboon Tawonwan, Kaokanya Sudaprasert, Nat Kasayapanand, 2008, "A study of air flow behavior through the solar chimney by Computational Fluid Dynamics (CFD) Technique", *The 4th Conference on ENERGY NETWORK OF THAILAND*, 14-16 May 2008, Rose Garden Riverside Hotel, Nakornpathom.
8. Anupong Choomee, Nat Kasayapanand, Kaokanya Sudaprasert, 2008, "Effect of attic form under roof on the heat transfer coefficient", *The 4th Conference on ENERGY NETWORK OF THAILAND*, 14-16 May 2008, Rose Garden Riverside Hotel, Nakornpathom.
9. Panuwat Ekthammasuit, Apichai Therdtthianwong, Supaporn Therdtthianwong, Kaokanya Sudaprasert, 2008, "Fabrication of PEM fuel cells catalyst coated membrane (CCM) concept using different solvents", *The 4th Conference on ENERGY NETWORK OF THAILAND*, 14-16 May 2008, Rose Garden Riverside Hotel, Nakornpathom.
10. Wimon Sujinno, Apichai Therdtthianwong, Supaporn Therdtthianwong, Kaokanya Sudaprasert, 2008, "Study of electrode fabrication for proton exchange membrane fuel cell", *The 4th Conference on ENERGY NETWORK OF THAILAND*, 14-16 May 2008, Rose Garden Riverside Hotel, Nakornpathom.
11. Pattana Pakjamsai, Kaokanya Sudaprasert, Apichai Therdtthianwong, Supaporn Therdtthianwong, 2008, "AC impedance diagnosis of PEM fuel cell during cell activation", *The 4th Conference on ENERGY NETWORK OF THAILAND*, 14-16 May 2008, Rose Garden Riverside Hotel, Nakornpathom.
12. Pongpun Kumsap, Sirichai Thepa, Kaokanya Sudaprasert, 2009, "An investigation of waste heat recovery from air conditioner to generate hot water", *The 1st KMUTT Graduate Poster Forum Conference*, 22 April 2009, King Mongkut's University of Technology Thonburi, Bangkok.
13. Sasiwimol Kanokkantapong, Sirichai Thepa, Kaokanya Sudaprasert, 2009, "An investigation of optimal soil disinfection system using solar cell", *1st KMUTT Graduate Poster Forum Conference*, 22 April 2009, King Mongkut's University of Technology Thonburi, Bangkok.
14. Rattinun Pitinunpong, Rattanachai Pairintra, Kaokanya Sudaprasert, Nikom Lamsak, 2009, "The production of palm fiber-cement from empty fruit bunch oil palm with cement", *Science and technology for country development*, 10 July 2009, Faculty of Science and Technology, Thammasat University, Rangsit Campus.
15. Klinsiri, N. and Sudaprasert, K. (2010). "A parametric study of hydrogen production through electrolysis process", *The 6th Conference on ENERGY NETWORK OF THAILAND*, 5-7 May 2010, Holiday Inn Resort Regent Beach Cha-Am, Petchaburi.
16. Kaewsringam, S., Utistham, T., Pairintra, R., Pulsawad, P., Sudaprasert, K. (2010). "Optimal energy production from organic solid waste by biological and mechanical

- methods”, *The 6th Conference on ENERGY NETWORK OF THAILAND*, 5-7 May 2010, Holiday Inn Resort Regent Beach Cha-Am, Petchaburi.
17. Jarujareet, S., Pairintra, R., Sudaprasert, K. (2010). “Biodiesel production using alcohol recovery from Glycerine”, *The 6th Conference on ENERGY NETWORK OF THAILAND*, 5-7 May 2010, Holiday Inn Resort Regent Beach Cha-Am, Petchaburi.
 18. Yodarun, A., Pairintra, R., Sudaprasert, K. (2010). “Production of biodiesel from high free fatty acid coconut oil”, *The 6th Conference on ENERGY NETWORK OF THAILAND*, 5-7 May 2010, Holiday Inn Resort Regent Beach Cha-Am, Petchaburi.
 19. Limmun, W., Pairintra, R., Krisnangkura, K., Sudaprasert, K. (2010). “Production of biodiesel using non-thermal energy reactor”, *The 6th Conference on ENERGY NETWORK OF THAILAND*, 5-7 May 2010, Holiday Inn Resort Regent Beach Cha-Am, Petchaburi.
 20. Aiemsa-ard, P., Pairintra, R., Sudaprasert, K. (2010). “A study of stirring in reactor for biodiesel production from beef tallow”, *The 6th Conference on ENERGY NETWORK OF THAILAND*, 5-7 May 2010, Holiday Inn Resort Regent Beach Cha-Am, Petchaburi.
 21. Kidlomjick, C., Pairintra, R., Sudaprasert, K. (2010). “Feasibility study of biogas production from brewery spent grain”, *The 6th Conference on ENERGY NETWORK OF THAILAND*, 5-7 May 2010, Holiday Inn Resort Regent Beach Cha-Am, Petchaburi.
 22. Kaewsringam, S., Utistham, T., Pairintra, R., Sudaprasert, K. and Soontornrangson, W. (2010). “Comparison of using refuse derived fuel and eucalyptus wood in an opened-top stratified downdraft gasifier”, *Proceedings of the 3rd SUT Graduate Conference 2010*, 21-23 November 2010, Suranaree University of Technology, Nokornratchasima, pp. 81-85.
 23. Choocharoen, K., Sudaprasert, K. and Songprakorp, R. (2011). “Effects of feed current characteristic on efficiencies of electrolytic process”, *the 8th KU-KPS Conference*, 8-9 December 2011, Kasetsart University Kamphaengsaen, Nakornprathom, pp. 811-818.
 24. Janlee, T. and Sudaprasert, K. (2012). “Effects of temperature on hydrogen production by electrolytic process”, *Proceedings of the 4th Science Research Conference*, 12-13 March 2012, Naresuan University, Phitsanulok, pp. 31-34.
 25. Thippan, R. and Sudaprasert, K. (2012). “Effects of electrode materials on efficiencies of hydrogen production by electrolytic process”, *Proceedings of the 4th Science Research Conference*, 12-13 March 2012, Naresuan University, Phitsanulok, pp. 35-38.
 26. Manachaichana, A., Utistham, T., Sudaprasert, K., Krisnangkura, K., Promsuwan, S. and Boonsae, M. (2012). “A study of optimum condition of activated carbon production from palm shell”, *The 8th Conference on ENERGY NETWORK OF THAILAND*, 2-4 May 2012, Taksila hotel, Mahasarakham.

27. Puekpuang, K., Utistham, T., Sudaprasert, K., and Laosiripojana, N. (2012). "Methanol synthesis on Cu/ZnO/Al₂O₃ catalyst in slurry phase", *The 8th Conference on ENERGY NETWORK OF THAILAND*, 2-4 May 2012, Taksila hotel, Mahasarakham.
28. Pantong, N., Phankosol, S., Sudaprasert, K. and Krisnangkura, K. (2012). Kinetics of trans-ethylation of palm oil in a continuous reactor, *The 38th Congress on Science and Technology of Thailand (STT 38)*, 17-19 October 2012, The Empress Convention Centre, Chiang Mai.
29. Phankosol, S., Pantong, N., Sudaprasert, K. and Krisnangkura, K. (2012). Kinetics of transmethylation of palm oil in a continuous reactor, *The 38th Congress on Science and Technology of Thailand (STT 38)*, 17-19 October 2012, The Empress Convention Centre, Chiang Mai.