

ASHRAE TC5.5 BIBLIOGRAPHY (1997-2007)

2007

- 2007 Zhang, L.Z., 2007. Heat and mass transfer in a cross-flow membrane-based enthalpy exchanger *Int. J. Heat Mass Transfer*, **50**, 151-162.
- 2007 Wang, Y.H., Simonson, C.J., Besant, R.W. and Shang, W., 2007. Transient humidity measurements: Part I – Sensor calibration and characteristics, *IEEE Trans. on Instrumentation & Measurement*, (in press).
- 2007 Wang, Y.H., Simonson, C.J., Besant, R.W. and Shang, W., 2007. Transient humidity measurements: Part II – Determination of the characteristics of an interactive device, *IEEE Trans. on Instrumentation & Measurement*, (in press).
- 2007 Sparrow E.M., Tong, J.C.Y., Johnson, M.R. and Martin, G.P., 2007. Heat and mass transfer characteristics of a rotating regenerative total energy wheel, *Int. J. Heat Mass Transfer*, **50**, 1631-1636.
- 2007 Simonson, C.J., 2007. Heat and energy wheels, *Encyclopedia of Energy Engineering and Technology (EEE)*, Edited by Barney Capehart, Taylor & Francis Books, New York, 20 pages, (in press).
- 2007 Shang, W. and Besant, R.W., 2007. Effects of Flow Channel Variations due to Manufacturing and Fouling on Heat Exchanger Performance, *Int. J. of Heat Exchangers*, **7**, 127-144.
- 2007 Fauchoux, M., Simonson, C.J. and Torvi, D.A., 2007. The effect of energy recovery on perceived air quality, energy consumption and economics of an office building, *ASHRAE Trans.*, **113**(2) (in press).

2006

- 2006 Zhang, L.Z., 2006. Investigation of moisture transfer effectiveness through a hydrophilic polymer membrane with a field and laboratory emission cell, *Int. J. Heat Mass Transfer*, **49**, 1176-1184.
- 2006 Zhang, L.Z., 2006. Fabrication of a lithium chloride solution based composite supported liquid membrane and its moisture permeation analysis, *Journal of Membrane Science*, **276**, 91-100.
- 2006 Wang, Y.H., Besant, R.W., Simonson, C.J. and Shang, W., 2006. Application of humidity sensors and an interactive device, *Sensors and Actuators B: Chemical*, **115**, 93-101.
- 2006 Sphaier, L.A. and Worek, W.M., 2006. The effect of axial diffusion in desiccant and enthalpy wheels, *Int. J. Heat Mass Transfer*, **49**, 1412-1419.
- 2006 Shang, W. and Besant, R.W., 2006. Impacts of Manufacturing Tolerances on the Effectiveness-NTU Method for Regenerative Exchanger Design, *ASHRAE Trans.*, **112** (1), 111-122.

- 2006 Shang, W. and Besant, R.W., 2006. Effects of Manufacturing Tolerances on Regenerative Exchanger Number of Transfer Units and Entropy Generation. *ASME J for Gas Turbines and Power*, **128**, 585-598.
- 2006 Fan, H., Simonson, C.J., Besant, R.W. and Shang, W., 2006. Performance of a run-around system for HVAC heat and moisture transfer applications using cross-flow plate exchangers coupled with aqueous lithium bromide, *HVAC&R Research*, **12** (2), 313-336.
- 2006 Abe, O.O., Wang, Y.H., Simonson, C.J., Besant, R.W. and Shang, W., 2006. Transient temperature measurements and characteristics for temperature sensors and energy wheels, *ASHRAE Trans.*, **112** (2), 76-88.
- 2006 Abe, O.O., Simonson, C.J., Besant, R.W. and Shang, W., 2006. Effectiveness of energy wheels from transient measurements: Part II – Results and verification, *Int. J. Heat Mass Transfer*, **49**, 63–77.
- 2006 Abe, O.O., Simonson, C.J., Besant, R.W. and Shang, W., 2006. Effectiveness of energy wheels from transient measurements: Part I – Prediction of effectiveness and uncertainty, *Int. J. Heat Mass Transfer*, **49**, 52–62.
- 2006 Abe, O.O., Besant, R.W., Simonson, C.J. and Shang, W., 2006. Relationship between energy wheel speed and effectiveness and its transient response, Part I: Mathematical development of the characteristic time constants and their relationship with effectiveness, *ASHRAE Trans.*, **112** (2), 89-102.
- 2006 Abe, O.O., Besant, R.W., Simonson, C.J. and Shang, W., 2006. Relationship between energy wheel speed and effectiveness and its transient response, Part II: Comparison between mathematical model predictions and experimental measurements and uncertainty analysis, *ASHRAE Trans.*, **112** (2), 103-115.

2005

- 2005 Xia, Y., Hrnjak, S., Jacobi, A.M., 2005. Air-side thermal-hydraulic performance of louvered-fin, flat-tube heat exchangers with sequential frost-growth cycles, *ASHRAE Trans.*, **111**(1), 487-495.
- 2005 Webb, R.L. and Kim, N., 2005. Principles of enhanced heat transfer, Taylor and Francis Group, New York.
- 2005 Wang, Y.H., Besant, R.W., Simonson, C.J. and Shang, W., 2005. Transient humidity measurements for flow through an energy wheel, *ASHRAE Trans.*, **111** (2), 353-369.
- 2005 Shang, W., Chen, H. and Besant, R.W., 2005. Frost Growth in Regenerative Wheels, *ASME Journal of Heat Transfer*, **127**, 1015-1026.
- 2005 Shang, W. and Besant, R.W., 2005. Determining Flow Channel Size Variations Using a Pressure Probe for a Typical Energy Wheel, *ASHRAE Trans.*, **111**(2) 243-257.
- 2005 Pak, B., Groll, A. and Braun, J.E., 2005. Impact of fouling and cleaning on plate fin and spine fin heat exchanger performance, *ASHRAE Trans.*, **111**(1), 496-504.

- 2005 Nyman, M. and Simonson, C.J., 2005. Life cycle assessment of residential ventilation units in a cold climate, *Building and Environment*, **40**(1), 15-27.
- 2005 Mercer, K.B. and Braun, J.E., 2005. Evaluation of demand-controlled ventilation and enthalpy exchangers in small commercial buildings, *ASHRAE Trans.*, **111**(1), 873-889.
- 2005 Mercer, K.B. and Braun, J.E., 2005. Evaluation of a ventilation heat pump for small commercial buildings, *ASHRAE Trans.*, **111**(1), 890-900.
- 2005 Lee; Y-C, Jeng, M-S, Huang, C-Y, Perng, J-C and Lan, C-H, 2005. Analysis of cross-flow type of air-to-air total heat exchangers made of functional paper, *HVAC&R Research*, **11**(3), 395-410.
- 2005 Fan, H., Simonson, C.J., Besant, R.W. and Shang, W., 2005. Run-around heat recovery system using cross-flow flat-plate heat exchangers with aqueous ethylene glycol as the coupling fluid, *ASHRAE Trans.*, **111**(1), 901-910.
- 2005 Asiedu, Y., Besant, R.W. and Simonson, C.J., 2005. Cost effective design of dual heat and energy recovery exchangers for 100% ventilation air in HVAC cabinet units, *ASHRAE Trans.*, **111**(1), 857-872.

2004

- 2004 Sphaier, L.A. and Worek, W.M., 2004. Analysis of heat and mass transfer in porous sorbents used in rotary regenerators, *Int. J. Heat Mass Transfer*, **47**, 3415-3430.
- 2004 Shang, W. and Besant, R.W., 2004. Measurement of Pore Size Variations and Its Effect on Energy Wheel Performance, *ASHRAE Trans.*, **110**(1), 410-421.
- 2004 Nyman, M. and Simonson, C.J., 2004. Life cycle assessment (LCA) of air-handling units with and without air-to-air energy exchangers, *ASHRAE Trans.* **110**(1), 399-409.
- 2004 Freund, S., Klein, S.A., Reindl, D.T., 2004. Energy savings potential of energy recovery ventilation in an animal housing facility, Energy Savings Potential of Energy Recovery Ventilation in an Animal Housing Facility, *ASHRAE Trans.*, **110**(1), 120-129.
- 2004 Asiedu, Y., Besant, R.W. and Simonson, C.J., 2004. Wheel selection for heat and energy recovery in simple HVAC ventilation design problems, *ASHRAE Trans.* **110**(1), 381-398.

2003

- 2003 Zhang, L.Z. and Niu, J.L., 2003. A pre-cooling Munters environmental control desiccant cooling cycle in combination with chilled-ceiling panels, *Energy*, **28**, 275-292.
- 2003 Freund, S., Klein, S.A., Reindl, D.T., 2003. A semi-empirical method to estimate enthalpy exchanger performance and a comparison of alternative frost control strategies, *HVAC&R Research*, **9**(4).
- 2003 Dieckmann, J., Roth, K.W. and Brodrick, J., 2003. Air-To-Air Energy Recovery Heat Exchangers. *ASHRAE Journal*, **45**(8), 57-58.

2003 Chen, H., Thomas, L. and Besant, R.W., 2003. Fan Supplied Heat Exchanger Fin Performance under Frosting Conditions, *Int. J. of Refrigeration*, **26**, 140-149.

2003 Besant, R.W. and Simonson, C.J., 2003. Air-to-air exchangers, *ASHRAE J.*, **45**(4), 42-52.

2002

2002 Zhang, L.Z. and Niu, J.L., 2002. Effectiveness correlations for heat and moisture transfer processes in an enthalpy exchanger with membrane cores, *ASME J. Heat Transfer*, **124**, 922-929.

2002 Niu, J.L., Zhang, L.Z. and Zuo, H.G., 2002. Energy savings potential of chilled-ceiling combined with desiccant cooling in hot and humid climates, *Energy and Buildings*, **34**, 487-495.

2002 Niu, J.L. and Zhang, L.Z., 2002. Performance comparisons of desiccant of desiccant wheels for air dehumidification and enthalpy recovery, *Appl. Thermal Eng.*, **22**, 1347-1367.

2002 Niu, J.L. and Zhang, L.Z., 2002. Effects of wall thickness on the heat and moisture transfers in desiccant wheels for air dehumidification and enthalpy recovery, *Int. Commun. Heat Mass Transfer*, **29**, 255-268.

2001

2001 Sparrow, E.M., Abraham, J.P., Martin, G.P. and Tong, J.C.Y., 2001. Air-to-air energy exchanger test facility for mass and energy transfer performance, *ASHRAE Trans.*, **107**(2), 450-456.

2001 Sparrow, E.M., Abraham, J.P., Martin, G.P. and Tong, J.C.Y., 2001. An experimental investigation of a mass exchanger for transferring water vapor and inhibiting the transfer of other gases, *Int. J. Heat Mass Transfer*, **44**, 4313-4321.

2001 Shang, W., Wawryk, M. and Besant, R.W., 2001. Air Crossover in Rotary Wheels used for Air-to-Air Heat and Moisture Recovery. *ASHRAE Trans.*, **107**(2), 72-83.

2001 Shang, W. and Besant, R.W., 2001. Energy Wheel Effectiveness Evaluation, Part I: Outlet Airflow Property Distributions Adjacent to an Energy Wheel, *ASHRAE Trans.* **107**(2), 266-274.

2001 Shang, W. and Besant, R.W., 2001. Energy Wheel Effectiveness Evaluation, Part II: Testing and Monitoring Energy Wheels in HVAC Applications. *ASHRAE Trans.* **107**(2), 275-280.

2001 Niu, J.L. and Zhang, L.Z., 2001. Membrane-based enthalpy exchanger: material considerations and clarification of moisture resistance, *Journal of Membrane Science*, **189**, 179-191.

2000

2000 Simonson, C.J., Shang, W. and Besant, R.W., 2000. Part-load performance of energy wheels: Part I - Wheel speed control, *ASHRAE Trans.*, **106**(1), 286-300.

- 2000 Simonson, C.J., Shang, W. and Besant, R.W., 2000. Part-load performance of energy wheels: Part II - Bypass control and correlations, *ASHRAE Trans.*, **106**(1), 301-310.
- 2000 Mehendale, S.S., Jacobi, A.M. and Shah, R.K., 2000. Fluid flow and heat transfer at micro- and meso-scales with application to heat exchanger design” *Applied Mechanics Reviews*, **53**, 175-193.
- 2000 Chen, H., Thomas, L. and Besant, R.W., 2000. Modeling Frost Characteristics on Heat Exchanger Fins: Part I - Numerical Model, *ASHRAE Trans.*, **106**(2), 357-367.
- 2000 Chen, H., Thomas, L. and Besant, R.W., 2000. Modeling Frost Characteristics on Heat Exchanger Fins: Part II - Model Validation and Limitations, *ASHRAE Trans.*, **106**(2), 368-376.
- 2000 Besant, R.W. and Simonson, C.J., 2000. Air-to-air energy recovery, *ASHRAE J.*, **42**(5), 31-42.
- 2000 Besant, R.W. and Asiedu, Y., 2000. Sizing and Balancing Air Duct Systems. *ASHRAE Journal*, **42**(12), 24-36.
- 2000 Asiedu, Y., Besant, R.W. and Gu, P., 2000. HVAC Duct Design Using Genetic Algorithms, *Int. J. HVAC & R Research*, **6**(2), 149-173.
- 2000 Asiedu, Y., Besant, R.W. and Gu, P., 2000. A Simplified Procedure for HVAC Duct Design, *ASHRAE Trans.* **106**(1), 124-142.

1999

- 1999 Simonson, C.J., Ciepliski, D. L. and Besant, R.W., 1999. Determining the performance of energy wheels: Part I - Experimental and numerical methods, *ASHRAE Trans.*, **105**(1), 174-187.
- 1999 Simonson, C.J., Ciepliski, D. L. and Besant, R.W., 1999. Determining the performance of energy wheels: Part II - Experimental data and numerical validation, *ASHRAE Trans.*, **105**(1), 188-205.
- 1999 Simonson, C.J. and Besant, R.W., 1999. Energy wheel effectiveness. Part I – Development of dimensionless groups, *Int. J. Heat Mass Transfer*, **42**(12), 2161-2170.
- 1999 Simonson, C.J. and Besant, R.W., 1999. Energy wheel effectiveness. Part II – Correlations, *Int. J. Heat Mass Transfer*, **42**(12), 2171-2185.
- 1999 Paarporn, S., 1999. Runaround loop heat recovery with dehumidification system, *ASHRAE Journal*, **41**(6), 32-38.
- 1999 Chen, H., Thomas, L. and Besant, R.W., 1999. Measurement of Frost Characteristics on Heat Exchanger Fins Part I: Test Facility and Instrumentation, *ASHRAE Trans.* **105**(2), 283-293.
- 1999 Chen, H., Thomas, L. and Besant, R.W., 1999. Measurement of Frost Characteristics on Heat Exchanger Fins Part II: Data and Analysis, *ASHRAE Trans.* **105**(2), 294-302.

1999 Bilodeau, S., Brosseau, P., Lacroix, M. and Mercadier, Y., 1999. Frost formation in rotary heat and moisture exchangers, *Int. J. Heat Mass Transfer*, **49**, 63-77.

1998

1998 Simonson, C.J. and Besant, R.W., 1998. Heat and moisture transfer in energy wheels during sorption, condensation and frosting conditions, *ASME J. Heat Transfer*, **120**(3), 699-708.

1998 Kalinin, E.K. and Dreitser, G.A., 1998. Heat transfer enhancement in heat exchangers, *Advances in Heat Transfer*, **31**, 159-332.

1998 Johnson, A. B., Besant, R.W. and Simonson, C.J., 1998. Uncertainty analysis in the testing of air-to-air heat/energy exchangers installed in buildings, *ASHRAE Trans.*, **104**(1B), 1639-1650.

1998 Irwin, D. R., Simonson, C.J., Saw, K. Y. and Besant, R.W., 1998. Contaminant and heat removal effectiveness and air-to-air heat/energy recovery for a contaminated air space, *ASHRAE Trans.*, **104**(2), 433-447.

1998 Guo, P., Ciepliski, D.L. and Besant, R.W., 1998. A testing and HVAC design methodology for air-to-air heat pipe heat exchangers, *HVAC&R Research*, **4**(1).

1998 Ciepliski, D. L., Besant, R.W. and Simonson, C.J., 1998. Some recommendations for improvements to ASHRAE standard 84-1991, *ASHRAE Trans.*, **104**(1B), 1651-1665.

1997

1997 Simonson, C.J. and Besant, R.W., 1997. Heat and moisture transfer in desiccant coated rotary energy exchangers: Part I - Numerical model. *Int. J. HVAC&R Research*, **3**(4), 325-350.

1997 Simonson, C.J. and Besant, R.W., 1997. Heat and moisture transfer in desiccant coated rotary energy exchangers: Part II - Validation and sensitivity studies. *Int. J. HVAC&R Research*, **3**(4), 351-368.

1997 Lacey, D.R. and Smith, D., 1997. Innovative ventilation system for animal anatomy laboratory, *ASHRAE Journal*, **39**(4), 65-67.

1997 Elsayed, M .M., El-Refae, M.M. and Borhan, Y.A., 1997. Energy-efficient heat recovery systems for air conditioning of indoor swimming pools. *ASHRAE Trans.*, **103**(1), 259-269.