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Professor
Department of Civil and Architectural Engineering - Building Science
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Education

2015
Executive Program (Pasteur), Harvard Business School, Harvard University, USA
2007
University Pedagogical Training Program, Aarhus University, Denmark
1989
Ph.D. Sc. Agric. Engineering, Royal Veterinary- and Agricultural University, Denmark
1982
B.Sc., Mech. Engineering, Jilin University of Technology, China

Career/Experience

1999-
Senior Scientist, University of Aarhus, Faculty of Sciences and Technology (Faculty of Agricultural Sciences, 2007.01.-2011.01; Danish Institute of Agricultural Sciences before Jan. 01, 2007), Dept. of Engineering
1991-1998
Scientist, Danish Institute of Agricultural Sciences, Dept. of Agric. Engineering
1988-1990
Scientist, Danish Building Research Institute
1984-1988
Ph.D.-Student, Agric. Eng., The Royal Veterinary- and Agricultural University, Denmark
1983-1984
Graduated Student (M.Sc.), Jilin University of Technology, China
1982-1983
Research/Teaching Assistant, Jilin University of Technology, China

Project experiences & managements

Has been Principal investigator, project manager and project working package responsible for around 40 research projects in Bio-environmental engineering, including climatic system modelling and control; air quality and air distribution control in room, instrumentation and sensing, modelling mass transfer in emission boundary layer, odour and gases emission and dispersion from livestock buildings. Many of those projects are application oriented, especially the larger project with close collaborations with industry, public service sectors and other research institutes. Currently coordinates two large national research projects with a total funding about 26 mil DKK and an EU COST (network) project with 32 European countries and four international partner counties.

Supervision

Has supervised 14 Ph.Ds (10 in the last 10-years, after joining in AU) & 7 post docs in the areas of modelling and control of indoor climate, smart ventilation; air distribution and gas & odour emission from livestock buildings; Has been mentor for 9 international guest Ph.Ds and a numbers of visiting scientist.
Is currently the principle supervisor for 3 Ph.D. projects; 1 postdoc projects
Responsible for M.Sc. and Ph.D. program in "Fluid Dynamics and Building Ventilation"

Education for M.Sc. and Ph.D. program

Responsible for a M.Sc. Course on Air Physics and Ventilation and a Ph.D. Course on Ventilation, Indoor Air Quality and Environments

Reviewer for (ad hoc)

Biosystems Engineering; Wind and Structures; Computers and Electronics in Agriculture; Atmospheric Environments; The Transactions of the ASABE; Poultry Science; Environmental Monitoring and Assessment; The CIGR E-Journal; Applied

Engineering for Agriculture; International Journal of Environment and Pollution; Journal of the Air & Waste Management Association; Canadian Biosystems Engineering; Sensor; and numbers of international conferences and seminars

Publications

Has total over 190 scientific publications, including 75 peer-reviewed research articles in International Scientific Journals and 103 papers in Proceedings of International Conference and Seminars (with and without review procedures). Has 43 peer-reviewed research journal articles & 44 conference papers published in the last 5 years.

Selected scientific publications (peer reviewed):

- 1.Ntinis G K; Zhang G; Fragos V P; Bochtis D; Nikita-Martzopoulou C (2014). Airflow patterns around obstacles with arched and pitched roofs: Wind tunnel measurements and direct simulation. *European Journal of Mechanics - B/Fluids*, 43:216-229
- 2.Rong L; Liu D; Pedersen EF; Zhang G. (2014). Effect of climate parameters on air exchange rate and ammonia and methane emissions from a hybrid ventilated dairy cow building. *Energy and Buildings*, 82 (2014) 632–643
- 3.Zong C; Zhang G. (2014). Numerical modelling of airflow and gas dispersion in the pit headspace via slatted floor: Comparison of two modelling approaches. *Computers and Electronics in Agriculture*, 109: 200-211
- 4.Bjerg B; Liberati P; Marucci A; Zhang G; Banhazi T; Bartzanas T; Cascone G; Lee I-B; Norton T (2013). Modelling of ammonia emissions from naturally ventilated livestock buildings - Part 2: Air change modelling. *Biosystems Engineering* 116:246-258
- 5.Calvet S; Gates R S; Zhang G; Estellés F; Ogink N W M; Pedersen S; Berckmans D (2013). Measuring gas emissions from livestock buildings: A review on uncertainty analysis and error sources. *Biosystems Engineering* 116(3):221-231
- 6.Shen X; Zhang G; Bjerg B. (2013). Assessments of experimental designs in Response Surface modelling process: estimating ventilation rate in naturally ventilated livestock buildings. *Energy and Buildings*, 62: 570-580
- 7.Shen X; Zhang G; Wu W; Bjerg B. (2013). Model-based control of natural ventilation in dairy buildings to reduce ammonia emission. *Computers and Electronics in Agriculture*, 94: 47-57
- 8.Wu W; Zong C; Zhang G (2013). Comparisons of two numerical approaches to simulate slatted floor of a slurry pit model – Large eddy simulations. *Computers and Electronics in Agriculture*, 93(1): 78-89
- 9.Tong G; Zhang G; Christopher DM; Bjerg B; Ye Z; Cheng J (2013). Evaluation of turbulence models to predict airflow and ammonia concentrations in a scale model swine building enclosure. *Computers and Fluids*, 71(2013): 240-249
- 10.Wu W; Zhai J; Zhang G; Nielsen PV. (2012). Evaluation of methods for determining air exchange rate in a naturally ventilated dairy cattle building with large openings using computational fluid dynamics (CFD). *Atmospheric Environment*, 63: 179-188
- 11.Wu W; Zhang G; Kai P (2012). Emissions of Ammonia and Greenhouse Gases from Two Naturally Ventilated Dairy Cattle Buildings to Atmosphere– Quantifying the Emissions and Investigating the influencing factors. *Atmospheric Environment*, 61: 232-243
- 12.Shen X; Zhang G; Bjerg B (2012). Comparison of different methods for estimating ventilation rate through wind driven ventilated buildings. *Energy and Buildings*. 54:297-306
- 13.Wu W; Zhang G; Bjerg B; Nielsen PV (2012). An assessment of a partial pit ventilation system to reduce emission under slatted floor - Part 2: Feasibility of CFD prediction using RANS turbulence models. *Computer and Electronics in Agriculture*, 83, 134-142
- 14.Shen X; Zhang G; Bjerg B (2012) Investigation of Response Surface Methodology for modelling ventilation rate of a naturally ventilated building. *Building and Environment*, 54: 174-185
- 15.Zhang G; Strøm JS; Ravn P; Kristensen EF (2011). Performances testing of large, free blowing propellers and the method for measuring flow rate generated. *Biosystems Engineering*, 110(4): 458-464
- 16.Saha C K; Zhang G; Ni J; Ye Z (2011). Similarity criteria for estimation of gas emission from scale model studies. *Biosystems Engineering*, 108(3), 227-236.
- 17.Saha C K; Zhang G; Ni J (2010). Airflow and concentration characterisation and ammonia mass transfer modelling in wind tunnel studies. *Biosystems Engineering*, 107(4):328-340
- 18.Saha C K; Zhang G; Kai P; Bjerg B (2010). Effects of a Partial Pit Ventilation System on Indoor Air Quality and Gaseous Emissions from a Growing/Finishing Pig Building. *Biosystems Engineering*, 105(3), 279-287
- 19.Zhang G; Bjerg B; Strøm JS; Morsing S; Kai P; Tong G; Ravn P (2008). Emission effects of three different ventilation control strategies - A scale model study. *Biosystems Engineering*, 100(1), 96-104
- 20.Ye Z; Zhang G; Li B; Strøm JS; Dahl PJ (2008). Ammonia emission affected by airflow in scale model of a pig house. *The Transactions of the ASABE*, 51(6), 2113-2122
- 21.Strøm, J.S., Zhang G. and Morsing S. 2002. Predicting Near-Floor Air Velocities for a Slot Inlet Ventilated Building by Jet Velocity Decay Principles. *The Transactions of the ASAE* 45(2): 407-413
- 22.Zhang, G., Morsing, S., Bjerg, B., Svidt, K. & Strøm, J.S., 2000. Test room for validation of airflow patterns estimated by Computational Fluid Dynamics. *Journal of Agricultural Engineering Research*, 76(2): 141-148.
- 23.Zhang, G. & Strøm, J.S. (1999). Jet drop models for control of non-isothermal jets in a side-wall multi-inlet ventilation system. *The Transactions of the ASAE*, 42(4): 1121-1126.
- 24.Zhang, G., Svidt, K., Bjerg, B. & Morsing, S. (1999). Buoyant flow generated by thermal convection of a simulated pig. *The Transactions of the ASAE*, 42(4): 1113-1120.

Member of international scientific committees for

- International Conference of Agricultural Engineering - CIGR-AgEng 2012: Agriculture and Engineering for a Healthier Life, Valencia, Spain (2012)
- The Second International Conference on Building Energy and Environment, August 1-4, 2012, Boulder, Colorado, USA (COBEE 2012)
- International Symposium on New Technologies and Management for Greenhouses (GreenSys 2015), ÉVORA, PORTUGAL
- The 9th International Symposium on Heating, Ventilation, and Air Conditioning (ISHVAC) and The 3rd International Conference on Building Energy and Environment (COBEE), 2015, Tianjin, China