

## Curriculum Vitae

### Personal data:

Name: HUANG, Li Xin

Married status: Married, one son



### Address

Department of Equipment R&D

Research Institute of Chemical Industry of Forest Products

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### University Education:

Bachelor of Engineering, Zhejiang University, P.R.China 1984-1988

Master of Engineering, 1988-1991, Chinese Academy of Forestry, P.R. China,

Doctor of Philosophy, 2002 – 2005, National University of Singapore,

Supervisor: Prof. A.S. Mujumdar

### Research Interests:

- Drying theory and practice
- Computational Fluid Dynamics
- Modeling of heat and mass transfer
- Research and Development of spray drying and fluid bed drying

### Professional positions:

• Assistant Engineer, 1991 - 1994, Research Institute of Chemical Industry of Forest Products

• Engineer 1994 - 1998, Research Institute of Chemical Industry of Forest Products

• Associate Professor, 1998 – 2001, Research Institute of Chemical Industry of Forest Products

• Associate Professor and Deputy Director of Department of Equipment R&D, 2005 – present, Research Institute of Chemical Industry of Forest Products

### Professional Services:

- Engineer, 1991 – 1997, Wuxi County Spray Dryer Factory, Jiangsu Province,

China

- Head of Technical Department, 1998 - 1999), Linzhou Dryer Factory, Jiangsu Province, China
- Manager of Engineering Department, 1999 - 2001, Linzhou Dryer Factory, Jiangsu Province, China
- Member, 1999 – 2001, Professional Group on Drying Technology, Chinese Chemical Engineering Society
- Guest editor, Drying Technology -an international Journal, Spray drying
- Referee for Drying Technology , Journal of Fluids Engineering (ASME), Chemical Engineering Research and Design (ICHEME) etc

**Major Research Accomplishments:**

- Flue Gas Desulfurization Of Power Station, China 7<sup>th</sup> Five-Year-Plan Project
- Research and Development of High-speed Centrifugal Atomizer, Project from Ministry of Forestry, China.
- Multistage Drying System of Forest Products, Project from Ministry of Forestry, China.
- Simulation of Spray Drying Using Computational Fluid Dynamics, National University of Singapore, Singapore

**Major Engineering Accomplishments:**

- Spray drying of black liquor for 5000T/Y, 10000T/Y and 30000T/Y pulping plant
- Development of multi-stage drying system used in drying of milk, soybean protein, coconut extraction juice etc.
- Development of spray drying system of biochemical products
- Development of spray cooling-forming system
- Spray drying and cooling-forming system of powder emulsion explosive
- Development of vibration and multi-chamber fixed fluidized bed drying system
- Development of horizontal-tube evaporation system
- Study of dynamic property of high-speed rotor system in RW10T rotary atomizer
- Research and development of hundreds of drying system used in different industries

**Honors:**

- 2<sup>nd</sup> Award of Science and Technology Development of Forestry Ministry, 1994
- Award for Best Paper IWSID2004 , Mumbai, India.

## **Publications:**

### ***(a) Chapters in books***

- (1) **Huang L. X.** and Mujumdar, A.S., 2004, Spray Drying: Principle and Practice, in Guide to industrial drying, Ed by Mujumdar, A.S., 2<sup>nd</sup> Enhanced Edition
- (2) **Huang L. X.** and A.S. Mujumdar, Chapter 31, Refractance Window Drying, in Modern Drying Technology, Pan, Y., Wang X. and Liu, X. Ed., 2<sup>nd</sup> Edition, (in press)
- (3) Wang, B.H. and **Huang L. X.**, Drying Technology of Nanometer Materials, in Modern Drying Technology, Pan, Y., Wang X. and Liu, X. Ed., 2<sup>nd</sup> Edition, (in press)
- (4) Wang, B. and **Huang, L.X.**, A.S. Mujumdar, Drying of nanosize materials, in Handbook of Industrial Drying, 3<sup>rd</sup> Edition, (in press)
- (5) A.S. Mujumdar, I. Filkova and **Huang, L.X.**, Industrial Spray Drying: Principles, Practice and Developments, in Handbook of Industrial Drying, 3<sup>rd</sup> Edition (in press)

### ***Papers in referred Journals (after 2000)***

- (1) **Huang L. X.** et al, Study on energy-saving technology of spray drying. Journal of chemical industry of forest products, 2001, vol.35, No.1, pp 3-5.(Nanjing, China)(in Chinese)
- (2) **Huang L. X.** et al, Study on drying CPE in S-shape continuous fixed fluidized bed dryer. Journal of Nanjing Forestry University, 2001, Vol.25, No.3, pp45-48, (Nanjing, China)(in Chinese)
- (3) **Huang L. X.** et al, Study on new technology of zero pollution discharge in treating papermaking extracted waste liquor, 2001, Engineering Science of China, Vol.3, No.10, pp72-76 (Beijing, China) (in Chinese)
- (4) **Huang L. X.** et al., Recent progress of spray drying in China, Chemical Engineering (Xi'an, China), 2001, Vol. 29, No.2, pp51-55
- (5) **Huang, L. X.**, Kumar, K. And Mujumdar, A.S., Spray evaporation of different liquids in a drying chamber – effect on flow, heat and mass transfer performances, 13<sup>th</sup> International drying Symposium, Aug. 27-30, 2002, Beijing, China
- (6) **Huang, L. X.**, Kumar, K. And Mujumdar, A.S., 2003, Use of Computational Fluid Dynamics to Evaluate Alternative Spray Chamber Configurations, Drying Technology, 21(3), p385-412
- (7) **Huang, L. X.**, Kumar, K. and Mujumdar, A.S., 2003, A Parametric Study of the Gas Flow Patterns and Drying Performance of Co-current Spray Dryer: Results of a Computational Fluid Dynamics Study, Drying Technology, 21(6), p957-978
- (8) **Huang, L. X.** and Mujumdar, A.S., 2003, Classification & selection of spray dryers, Chemical Industry Digest (India), 7-8, p75-84
- (9) **Huang, L. X.** and Mujumdar, A.S., 2003, Design of spray dryers, Chemical Industry Digest (India), 11-12, p95-102
- (10) **Huang, L. X.**, Kumar, K. and Mujumdar, A.S., 2004, Simulation of Spray Evaporation using Pressure and Ultrasonic Atomizer – a Comparative Analysis, Russia TSTU Trans (English Version), 10 (1A), pp83-100
- (11) **Huang, L. X.**, Kumar, K and Mujumdar, A.S., 2004, Spray evaporation of different liquids in a drying chamber- Effect on flow, heat and mass transfer

- performance, China Journal of Chemical Engineering (English Version), 10, pp 74-83
- (12) **Huang, L. X.**, Kumar, K. and Mujumdar, A.S., 2004, Simulation of a spray dryer fitted with a rotary disk atomizer using a three dimensional computational fluid dynamic model, *Drying Technology*, 22(6), pp 1489-1515
- (13) Huang, W.D and **Huang, L. X.**, 2004, CFD simulations of an industrial spray dryer, IWSID2004, Mumbai, India
- (14) Chan, S.Y. and **Huang, L.X.**, 2004, A parametric study of a novel two-stage horizontal spray dryer, IWSID2004, Mumbai, India
- (15) **Huang, L. X.** and Mujumdar, A.S., 2005, Development of a new innovative conceptual design for horizontal spray dryer via mathematical modeling, *Drying Technology* 23(3), pp1169-1187
- (16) Wang B. H., Zhang W.B., Zheng W., Mujumdar, A.S. and **Huang, L. X.**, Progress in drying technology for nanomaterials, *Drying Technology*, 2005, 23 (1), 5-17
- (17) **Huang, L. X.**, Kumar, K. And Mujumdar, A.S., 2003, Numerical Experiments with evaporation of water droplets in a Mixed Flow Spray chamber, 2<sup>nd</sup> Nordic Drying Conference, Copenhagen, Denmark, 25-27/Jun/2003
- (18) **Huang, L. X.**, Kumar, k and Mujumdar, A.S., 2003, Effects of Air Infiltration and Heat Losses on Spray Evaporation in a Cylinder-on-cone Spray Dryer Chamber, 3<sup>rd</sup> Asia-Pacific Drying Conference, Bangkok, Thailand, 1-3/Sept./2003, pp97-112
- (19) **Huang, L. X.**, Passos, M.L., Kumar, K. and Mujumdar, A.S., 2004, A three-dimensional simulation of a spray dryer with a rotary atomizer, 14<sup>th</sup> International Drying Symposium, August, 2004, Brazil, Vol. A, pp319-325
- (20) **Huang, L. X.**, Kumar, K. and Mujumdar, A.S., 2004, Computational fluid dynamic simulation of droplet drying in a spray dryer, 14<sup>th</sup> International Drying Symposium, August, 2004, Brazil, Vol. A, pp326-331
- (21) **Huang, L. X.**, Passos, M. and Mujumdar, A.S., 2004, Comparison of CFD model with experimental results for a spray dryer fitted with a rotary disk atomizer, IWSID2004, Dec. 20-23, 2004, Mumbai, India
- (22) **Huang, L. X.**, 2004, CFD Simulation of a Co-current Spray Dryer fitted with an Ultrasonic Atomizer, IWSID2004, Dec. 20-23, 2004, Mumbai, India
- (23) Mujumdar, A.S. and **Huang, L.X.**, Global needs in drying, (Keynotes) in Proceedings of 10<sup>th</sup> China Drying Conference, Sept. 21-24, 2005, Nanjing, China
- (24) Birchal, V.S., **Huang, L.X.**, Mujumdar, A.S. and Passos, M.L., 2005, Spray dryers: modeling and simulation, *Drying technology*, (in press)
- (25) **Huang, L.X.** and Mujumdar, A.S., 2005, A three-dimensional simulation of a spray dryer fitted with a rotary atomizer, *Drying technology*, (in press)
- (26) **Huang, L.X.** and Mujumdar, Numerical investigations of two-stage horizontal spray drying using CFD, ADC2005, Kalkota, India (in press)
- (27) Fan, F.R., Wang, B.H., Zhang, W.B., Mujumdar, A.S. and **Huang, L.X.**, The study of drying kinetics of nanostructured magnesium hydroxide, ADC2005, Kalkota, India (in press)

