

1. **Name and Academic Rank**

Karlene A. Hoo, Professor & Associate Vice President of Research

2. **Degrees**

B. S. Cum Laude, Chemical Engineering, University of Pennsylvania, Philadelphia, PA, 1981

M.S. Chemical Engineering, University of Notre Dame, Notre Dame, IN, 1983

Ph.D. Chemical Engineering, University of Notre Dame, Notre Dame, IN, 1986

3. **Years of Service at Texas Tech University**

2004 – present Professor & Associate Vice President of Research, Texas Tech University

2004 – 2006 Professor & Associate Dean of Research, College of Engineering

1999 – 2004 Associate Professor & Graduate Advisor

4. **Other Related Experience**

Sum 2004 NASA Faculty Fellow, NASA Johnson Space Center, Houston, TX

1994-1999 Assistant Professor, University of South Carolina, Columbia, SC

Sum 1999,00 Visiting Scientist, Dow Chemical Co., Freeport, TX

Sum 1998 Visiting Scientist, Westinghouse Savannah Co.

Sum 1997 Visiting Scientist, Sandia National Laboratory, Albuquerque, NM

1992 Adjunct Professor, University of Pennsylvania, Philadelphia, PA

1988-1994 Consultant, The Dupont Chemical Co., Wilmington, DE

1986-1988 Process Engineer, Exxon Chemical Co., Linden, NJ

5. **Consulting, Patents, etc.**

Process consultant for Dow Chemical Co. and Alstom Power

6. **State(s) in Which Registered**

None

7. **Principal Publications of Last Five Years**

Wijeratne, N.S. and K.A. Hoo, "An Analytical Approach to Identify Fluid Flow Separation and Re-attachment in a Collapsible Channel," *Compt. & Chem. Engng*, doi:10.1016/j.compchemeng, 2006.07.014.

Shabde, V.S. and K.A. Hoo, "Design and Operation of a Spray Dryer for the Manufacture of Hollow Micro-particles," *Ind. & Eng. Chem. Res.*, doi: [10.1021/ie060025s](https://doi.org/10.1021/ie060025s) S0888-5885(06)00025-X, 2006.06.015.

Emets, S.E., K.A. Hoo, and U. Mann, "A Modified Hierarchy for Designing Chemical Processes," *Ind. & Eng. Chem. Res.*, 45, No. 14, pp 5037-5043, 2006.

Tian, Z. and K.A. Hoo, "State-Shared Model for Multiple-Input Multiple-Output Systems," *Journal of Control Theory and Applications*, 3, No. 4, pp 348-356, 2005.

Stefanov, Z. I. and K.A. Hoo, "Control of A Multiple Effect Falling Film Evaporator Plant," *Ind. & Eng. Chem. Res.*, 44, pp 3187-3202, 2005.

Shabde, V.S., G.M. Gladysz, and K.A. Hoo, "Experimental Determination of the Thermal Conductivity of Three-Phase Syntactic Foams," *J. Material Science*, 41 pp 4061-4073, 2006.

Shabde, V.S., S.E. Emets, U. Mann, G.M. Gladysz, N.N. Carlson, and K.A. Hoo, "Modeling of a Hollow Micro-particle Production Process," *Compt. & Chem. Engng*, 29, pp 2420-2428, 2005.

Stefanov, Z.I. and K.A. Hoo, "Control of A Multiple Effect Falling Film Evaporator Plant," *Ind. & Eng. Chem. Res.*, 44, No. 9, pp 3146-3158, 2005.

Tian, Z. and K.A. Hoo, "Multiple Model-Based Control of the Tennessee Eastman Process," *Ind. & Eng. Chem. Res.*, 44, No. 9, pp 3187-3202, 2005.

Buescher, C.D., B. Nachiappan, J. Brumbaugh, H.F. Janssen, and K.A. Hoo "Experimental Studies of the Effects of Abnormal Venous Valves on Fluid Flow," *Biotechnology Progress*, 21, No.3, pp 938-945, 2005.

Stefanov, Z.I. and K.A. Hoo, "Distributed Parameter Model of Black Liquor Falling Film Evaporators. Part 2 - Modeling of a Multiple-Effect Evaporator Plant," *Ind. & Eng. Chem. Res.*, 43, pp 8117--8132, 2004.

- Vasbinder, E.M., K.A. Hoo, and U. Mann, "Synthesis of Plantwide Control Structures Using a Decision-based Methodology," *in The Integration of Design and Control*, eds. P. Seferlis and M. Georgiadis, Elsevier Science, Amsterdam, 2004.
- Zheng, D. and K.A. Hoo, "System Identification and Model-based Control for Distributed Parameter Systems," *Compt. & Chem. Engng.*, 28, No. 8, pp 1361-1375, 2004.
- Hoo, K.A. and M.J. Piovoso, "Control Basics," Chapter 2.1 *in Process Control: An Instrument Engineer's Handbook* ed: B. Liptak, 4th edition, CRC Press, Boca Raton, FL, 2004.
- Stefanov, Z.I. and K.A. Hoo, "Hierarchical Multivariate Analysis of Cockle Phenomena," *Journal of Chemometrics*, 17, pp 1-19, 2003.
- Hoo, K.A., M.J. Piovoso, P. D. Schnelle, and D. A. Rowan, "Process and Controller Performance Monitoring: Overview with Industrial Application," *J. Adaptive Control & Signal Processing*, 17, No. 7-9, pp 635-662, 2003.
- Stefanov, Z.I., K. A. Hoo, M. Champagne, and W. McAdams, "Diagnosing and Monitoring Cockle Formation in Coated Magazine Paper Production," *IEEE Control Systems Magazine*, 23, No. 6, pp 59-68, 2003.
- Tian, Z. and K.A. Hoo, "Transition Control Using State-Shared Model Approach," *Compt. & Chem. Engng.*, 27, No. 11, pp 1641-1656, 2003.
- Vasbinder, E.M. and K.A. Hoo, "A Decision-Based Approach to Plantwide Control Structure Synthesis," *Ind. & Eng. Chem. Res.*, 42, No. 20, pp 4586-4598, 2003.
- Stefanov, Z.I. and K.A. Hoo, "A Distributed Parameter Model of Black Liquor Falling Film Evaporators. Part 1 - Modeling of a Single Plate," *Ind. & Eng. Chem. Res.*, 42, No. 42, pp 1925-1937, 2003.
- Hoo, K.A. and M.J. Piovoso, "Controller Performance Monitoring," Chapter 5.7 *in Process Software & Digital Networks: Instrument Engineer's Handbook*, pp 749-760 ed: B. Liptak, 3rd edition, CRC Press, Boca Raton, FL, 2002.
- Hoo, K.A. (Co-editor) and M.J. Piovoso (Co-editor), "Applications of Multivariate Statistics to Control," *IEEE Control Systems Magazine*, 22, No. 5, 2002.
- Zheng, D. and K.A. Hoo, "Low-order Model Identification for Implementable Control Solutions of Distributed Parameter Systems," *Compt. & Chem. Engng.*, 26, No. 7-8, pp 1049-1076, 2002.
- Zheng, D., K.A. Hoo, and M.J. Piovoso, "Low-order Model Identification of Distributed Parameter Systems by a Combination of Singular Value Decomposition and the Karhunen-Loève Expansion," *Ind. & Eng. Chem. Res.*, 41, No. 6, pp 1545-1556, 2002.

8. Scientific and Professional Society Membership

Tau Beta Pi	Women in Control
American Institute of Chemical Engineers	American Society of Engineering Education
IEEE & IEEE Control Systems Society	Instrumentation, Systems and Automation

9. Honors and Awards

NSF ADVANCE-PAID, 2006-2009	Petroleum Research Foundation 1995
ACC Best Paper Award, 2003, 1994	ASEE award contributions to research, 1997
TTU Halliburton Faculty Teaching 00-01	Dupont Young Professor Award, 1996-1999
NSF CCLI, 2003-2004	DOW Outstanding New Faculty 1998
Who's Who in Engineering & Science	USC Mortar Board Excellence Teaching, 1998
NSF CAREER, 1997-2001	Dupont Engineering Silver Award, 1991, 1992
NSF CAA, 1995-1996	Dupont Creative Innovation Award, 1991
NSF REG, 1996-1997	

10. Institutional and Professional Service in the Last Five Years

Faculty Senate 9/01-8/31/04	Finance Chair: 2004 IEEE (CCA/ISIC/CACSD), Taipei, Taiwan
Strategic Planning Committee	Computers & Systems Technology (AIChE) Division Director: 2002-present.
Faculty Senate Tenure Hearing 9/01-8/02	AACC Workshop Council Chair (elected): 2002--present.
Graduate Council 9/01-5/02	
Panel member: NSF/ORAU GFP, 02--04	
Workshop Conference Chair: 05-07 American Automatic Control Conference (ACC).	

Associate editor North America, ISA Transactions,
2002--present.
ISA Technical Program Chair , 2005-2007- ACOS
Division

Associate Editor IEEE Control Systems Magazine,
2002--present.
IEEE Board of Governors (elected)

11. Professional Development Activities in the Last Five Years

Workshop: Conceptual Design, Optimization and Process Operations, Pittsburgh, PA, June 2002.

Workshop: NSF/COACH (Committee Advance Women Chemists), Reno, NV, Nov. 2001.

Workshop: Teaching Teachers to Teach, Chem. Eng. Dept. at TTU, Lubbock, TX, Sept. 2000.