

1. Name and Academic Rank

James B. Riggs, Ph.D

2. Degrees

Ph.D., Chemical Engineering, University of California, Berkeley, CA, 1977.

M.S., Chemical Engineering, University of Texas at Austin, Austin, TX, 1972.

B.S., Chemical Engineering, University of Texas at Austin, Austin, TX, 1969.

3. Years of Service at Texas Tech University

1990- present Professor 1983 - 1990 Associate Professor

NUMBER OF STUDENTS SUPERVISED: Masters 25; PhD 14

4. Other Related Experience

1978 - 1983 West Virginia University, Assistant Professor

Co-Director of the Texas Tech Process Control and Optimization Consortium, 1992-present.

5. Consulting, Patents, Etc.

Industrial Process Control Consultant, Responsible for the application of advanced control to distillation columns for several companies (Dow Chemical, Amoco, Air Products, Celanese, Honeywell, Exxon Chemical, and Phillips Petroleum) 1987 – 2000

"Method for Controlling H₂/CO Ratio of In-Situ Coal Gasification Process," Oct. 1984, patent no. 4,476,927.

"Method for pH Control" with R.R. Rhinehart, July 1990, patent no. 4,940,551.

"Nonlinear Model Based Distillation Control," Nov 1993, with Martin Beauford and Jackie Watts, patent no. 5,260,865.

6. States in Which Registered

Previously in Texas.

7. Principle Publications of Last Five Years

Slaback, D and JB Riggs, "Time to Runaway in a Continuous Stirred Tank Reactor", *I&ECR*, Vol 43, No. 14, pp 3723-3730 (2004).

Gudekar, KG and JB Riggs, "Bifurcation and Stability Analysis of an Ethylene Oxide Reactor", *I&ECR*, Vol 42, pp3285-3293 (2003).

Hurowitz, SE, J Anderson, M Duval, and JB Riggs, "Distillation control configuration selection", *J Proc Con*, vol 13, pp 357-362 (2003).

Huang, H and JB Riggs, "Comparison of PI and MPC for Control of a Gas Recovery Unit", *Journal of Process Control*, Vol 12, pp 163-173 (2002).

Han, I.-S., J. B. Riggs, and C.-B. Chung, "Multivariable Control of a Fluidized Catalytic Cracking Process under Full and Partial Combustion Modes," *J. Chem. Eng. Japan*, 35, 830 - 839 (2002)

Huang, H and JB Riggs (2002), "Including Levels in MPC to Improve Distillation Control", *I&ECR*, Vol 41, No.16, pp 4048-4053.

Han, IS, CB Chung, and JB Riggs, "Modeling of a Fluidized Catalytic Cracking Process", *Computers and Chemical Engineering*, Vol 24, pp 1681-7, 2000.

Bobkov, A and JB Riggs, "pH Control Using Advanced PI Controls with the Dual Injection In-Line Process", Hurowitz, Bobkov, and Riggs, *Ind Eng Chem Res*, Vol 39, No. 7, pp 2418-2416, 2000.

Duvall, PM and JB Riggs, "On-line optimization of the Tennessee Eastman challenge problem", *J Process Control*, Vol 10, pp 19-33, 2000.

Books:

Himmelblau, DM and JB Riggs, *Basic Principles and Calculations in Chemical Engineering*, Seventh Edition, Prentice Hall, 2003.

Riggs, James B., *Chemical Process Control, Second Edition*, Ferret Publishing, 2001.

Riggs, James B., *A Guide to Self-Publishing University Textbooks*, Ferret Publishing, 2000.

Riggs, James B., *Chemical Process Control*, Ferret Publishing, Lubbock, Texas, 1999.

Riggs, James B., *An Introduction to Numerical Methods for Chemical Engineers, Second Edition*, Texas Tech University Press, 1994.

Riggs, James B., *An Introduction to Numerical Methods for Chemical Engineers*, Texas Tech University Press, 1988.

Ekerdt, John G. and James B. Riggs, *Chem. Calc. 9: Reactor Design Calculations*, Gulf Publishing Company, 1986.

8. Professional Societies

American Institute of Chemical Engineers

9. Honors and Awards

Award of Excellence in Research by Halliburton Education Foundation, 1988.

Award of Excellence in Teaching by Halliburton Education Foundation, 1989.

Best Paper award (Runner up), ISA90, ACOS Division "Advanced Model Based Control of a Sidestream Draw Column"

Best paper award (Runner up), ISA 1993, ACOS Division "Dynamic Modeling and Control of a Supercritical Fluid Extraction Process."

Best Tutorial award, ISA 1996, ACOS Division, "Distillation Control."

Recipient of the Professor B. D. Tilak Lectureship for 1998-1999 in the University Department Of Chemical Technology at the University of Mumbai, Mumbai, India.

10. Institutional and Professional Service in the Last Five Years

Undergraduate curriculum committee, Dept of Chemical Engineering, Texas Tech University

11. Professional Development Activities in the Last Five Years

"Teaching Engineering Faculty to Teach in an Active Learning Environment," Texas Tech University, College of Engineering, Sept. 11 - 14, 2000.

