Yaman Arkun

KOÇ University
İstanbul, Turkey

EDUCATION

PhD	1979	University of Minnesota	Chemical Engineering
MS	1976	University of Minnesota	Chemical Engineering
BS	1974	Boğaziçi University	Chemical Engineering

EMPLOYMENT

Professor of Chemical/Biological Eng.		KOÇ University	September 1999----
Provost		KOÇ University	Nov. 2003- Sept. 2009
Dean of Engineering		KOÇ University	September 1999- Nov. 2003
Professor		Georgia Institute of Technology	1991 - 1999
Associate	Professor	Georgia Institute of Technology	1985 - 1991
Assistant & Associate	Professor	Rensselaer Polytechnic Institute	1979 – 1985

SABBATICALS

University: Boğaziçi University
Industry : Tennessee Eastman, DuPont**,** Weyerhaeuser

CURRENT FIELDS OF INTEREST

Monitoring and Control of Industrial Processes
Dynamics and Control of Biological Systems
Systems Biology and Control
Modeling and Nonlinear Dynamics
Design and Optimization
Computer Aided Systems Engineering

INDIVIDUAL STUDENT GUIDANCE

PhD Students

Ahmet Palazoğlu
Fall 1984
Thesis: Studies on Design of Robust Chemical Plants
Vasilios Manousiouthakis
Fall 1985
Thesis: Design of Control Systems for Uncertain Chemical Plants
Bruce Hook
Spring 1990
Thesis: Experimental and Modeling Studies of a Non-Isothermal of Spouted Bed Reactor
Jean-Paul Calvet
Fall 1989
Thesis: A Differential Geometric Approach for the Nominal and Robust Control of Nonlinear Chemical Processes

Georgios Charos
Fall 1990
Thesis: Model Predictive Constrained Control: Development, Implementation, and Decentralization
Deborah E. Reeves
Spring 1991
A Comprehensive Approach to Control Configuration Design for Complex Systems
Min-Sen Chiu
Winter 1991
A Methodology for Robust Decentralized Controller Design
Evelio Hernandez
August 1992
Control of Nonlinear Systems Using Input-Output Information
Ravi Sriniwas
August 1995
Nonlinear Model Predictive Control: Enhancements and Case Studies
Atanu Banerjee
August 1996
Transition Control Based on Multiple Model Estimation and Control
Apostolos Rigopoulos
December 1998
Estimation and Control of Continuous Sheet Forming Processes
Yaohui Lu
March 2001
Scheduling Quasi-MinMax Nonlinear Model Predictive Control
Şıldır, Hasan
Continuing
Modeling, Optimization and Control of an Industrial Hydrocracker

M. S Students:

M. Ghaffari
Fall 1980
A Modular Synthesis Approach Towards On-Line Optimizing Control of Chemical Plants
K. J. Smith
Fall 1980
Dynamic Modeling and Control of a Non-Isothermal Spouted Bed Reactor
W. Etzkorn
Summer 1981
Computer Aided Operability Analysis via Interactive Graphics
G. Sawyer
Fall 1981
Control of a Spouted Bed Reactor
G. J. Godfrey
Winter 1982
Computer Control of a Heat Exchanger
S. Ramakrishnan
Summer 1982
Structural Sensitivity Analysis in Controller Synthesis
T. K. Ravindranath
Summer 1983
Design of Internal Model Controllers for Chemical Processes by Algebraic Theory

V. Guruswamy
Winter 1983
Use of Singular Values in Process Design and Control: New Computational Techniques and Applications In Chemical Engineering

J. Hollett
Winter 1984
Experimental Evaluation of Internal Model Computer Control

B. Savage
Winter 1985
Partitioning of Large Scale Systems and Synthesis of Process Control Structures Using Block Relative Gain Array

G. E. Louis
Summer 1985
Some Applications of Robustness Studies in Chemical Process Design and Control

S. J. Angelovic
Winter 1986
Development of a Data Acquisition and Digital Computer Control System for a Spouted Bed Reactor

C. Morgan
Winter 1986
Development of Computer Aids for Dynamic Operability Analysis

T. Peterson
Fall 1989
Model Predictive Control of a Semi-Batch Polymerization Reaction

D. Arnold
March 1991
Application of Kalman Filtering to a Polyolefin Polymerizer

Jerome Simminger
September 1991
A Constrained Nonlinear Model Predictive Controller

N. Lakshamanan
December 1997
Batch Control using Multiple Models

Jeremiah Tabb
Spring 2000
Using Wavelets and the Karhunen Loeve Transform to Model Data from Simulated Sheet Forming Processes

Barış Haznedar
Spring 2000
Reduced Order Infinite Horizon Model Predictive Control of Sheet Forming Processes

Esen Mestan
Fall 2003
Model Predictive Control of Supply Chain Systems

Uğur Güner
Summer 2005
Dynamics of Protein Folding

Şerife Sentürk
Fall 2006
An Optimization Approach to Study the Dynamcis of Co-translational Folding

Baday, Sefer
Fall 2008
Derivation of Pair Potentials for Optimal Folding of Secondary Structures

Canan, Ümmühan
Fall 2011 (Expected)
Modeling of an Industrial Hydrocracking Reactor

Çizmeci, Deniz
Continuing
Modeling and Dynamic Analysis of Insulin and Angiotension Signaling Pathways

RESEARCH GRANTS

1. Studies on Design and Control of Multi-regime Chemical Plants
National Science Foundation, $69,053 (11/15/80-4/30/83)

2. Robustness Studies in Design and Control of Chemical Plants
National Science Foundation, $49,512 (4/15/84-9/30/85)

3. Development of an Experimental Research Facility to Study Spouted Bed Systems
National Science Foundation, $20,284 (6/1/84-10/30/85)

4. Computer Equipment to Support Research in Real-time Process Control
Texas Instruments, $35,000 (9/84)

5. Modeling and Control of Spouted Bed Reactors: Theoretical and Experimental Studies
Petroleum Research Fund, $52,500 (6/1/84-9/31/87)

6. Robustness Studies in Design and Control of Chemical Plants
National Science Foundation, $51,975 (10/1/85-3/31/87)

7. Robustness Studies in the Synthesis of Nonlinear Process Control Systems.
National Science Foundation, $5,000 (10/1/86-3/31/87)

8. Real-time Expert Systems
Digital Equipment Corporation, $154,000 for equipment

9. Modeling and Predictive Control of Nonlinear Processes Using Input-Output Data
International Paper Company, $20,000 (8/1/1989-8/1/1990)

10. Industry-University Cooperative Research Program on a Comprehensive Approach to Control Structure Synthesis
National Science Foundation, $80,000 (8/1/89-1/31/92)

11. Modeling and Control of A Linear Low Density Polyethylene Polymerizer
Exxon Chemical Company, $164,904 (1/15/90-1/14/92)

12. Modeling and Predictive Control of Nonlinear Processes Using Input-Output Data
International Paper Company, $20,000 (8/1/1990-8/1/1992)

13. Chemical Process Control IV. Research Conference Proposal
National Science Foundation, $15,000, Aug. 1990

14. Transition Control Using Multiple-Model Based Estimation and Nonlinear Predictive Control
DuPont Polymers, $140,000 (11/1/1992-11/1/1996)

15. Nonlinear Process Control

Phillips Petroleum, $9,000 (10/1/1993-9/31/1994)

16. Two Dimensional Estimation and Control of Paper Machines
Weyerhaeuser Co., $25,000/year (1994-1999)

17. Transition Control
National Science Foundation, $ 162,156 (1996-1999)

18. Paper Machine Control using PCA based MPC
International Paper, $35,000 (1997-1998)

19. US-Turkey Cooperative Research Project: Studies on the Folding of Protein Dynamics (with A. Palazoğlu, B.Erman and A. Gürsoy). National Science Foundation $16,200 (2003-2006)

20. Real time Optimization and Control of Hydrocracking. TÜPRAŞ.140, 358 TL. (2010-2012).

21. Development of a Dynamic Model and Model Based Optimization and Control of a Semibatch Acrylonitrile-Vinyl Chloride Copolymerization Reactor (with Seda Kızılel). AKSA. 117.740 TL (2011-2013).

PUBLICATIONS

A. Parts of Books and Edited Books.

1. Arkun, Y., Littman, H. and Morgan, M. H., "Modeling of Spouted Bed Chemical Reactors," in Encyclopedia of Fluid Mechanics. Vol 4. Solids and Gas-Solids Flow, pages 1089-1127, (N. P. Cheremisinoff, Ed.), Gulf Publishing Co. (1986).

2. McAvoy, T. J., Arkun,Y. and Zafiriou, E. (Eds.), Model Based Process Control, Proceedings of the IFAC Workshop, Atlanta, June (1988).

3. Calvet, J-Paul. and Arkun, Y., "Stabilization of Feedback Linearized Nonlinear Processes Under Bounded Perturbations," in Recent Advances in Robust Control, pages 320-325, (P. Dorato and R. K. Yedavalli, Ed.) , New York: IEEE Press (1990).

4. Arkun, Y. (Ed.), New Trends in Process Control, Special Issue in Computers and Chemical Engineering, vol 14, no.4/5, May (1990).

5. Arkun, Y. and Ray, W. H. (Eds), Chemical Process Control-IV, Proceedings of the Fourth International Conference on Chemical Process Control, AIChE (1991).

6. Arkun, Y and Hernandez, E., "Control of Nonlinear Systems Using Input Output Information", Methods of Model Based Process Control, R. Berber (Ed.), NATO ASI Series, Kluwer Academic Publishers (1994).

7. Banerjee, A. , Arkun, Y., Pearson, R., and Ogunnaike, B., "H-infinity Control of Nonlinear Processes Using Multiple Linear Models" in Local Approaches to Nonlinear Modeling and Control, (R. Murray-Smith and T. A. Johansen, Eds.), Taylor & Francis, London (1996).

8. Arkun, Y. (Ed.), Special Issue: ADCHEM97- Advanced Control of Chemical Processes, Journal of Process Control (1998).

9. Arkun, Y., Banerjee, A. and Lakshmanan, N.M., "Self - Scheduling MPC using LPV Models",

Nonlinear Model Based Control, R. Berber (Ed.), NATO ASI Series, Kluwer Academic Publishers (1998).

10. Engell, S. and Arkun, Y., Eds. ADCHEM09 Proceedings (International Symposium on Advanced Control of Chemical Processes), IFAC Publication, 2010.

11. Engell, S. and Arkun, Y., Eds. Special Issue on "ADCHEM 2009", of Journal of Process Control, Volume 20, Issue 9, 2010.

B. Papers

1. Morari , M., Arkun, Y. and Stephanopoulos, G., "Studies in the Synthesis of Control Structures for Chemical Processes, Part I: Formulation of the Problem. Process Decomposition and the Classification of the Control Task, Analysis of the Optimizing Control Structures," AIChE J,vol. 26, no. 2, pp. 220, 1980.

2. Arkun, Y. and Stephanopoulos, G., "Part IV: Design of Steady-State Optimizing Control Structures for Chemical Process Units," AIChE J, vol. 26, no. 6, pp. 675, 1980.

3. Arkun, Y. and Stephanopoulos, G., "Part V: Design of Steady-State Optimizing Control Structures for Integrated Chemical Plants," AIChE J. ,vol. 27, no. 5, pp. 779, 1981.

4. Etzkorn, W. and Arkun, Y., "Computer Aided Operability Analysis via Interactive Graphics," in Applications of Computer Graphics in Chem. Eng., Computers and Chemical Eng., vol. 5, no. 4, pp. 233, 1981.

5. Smith, K., Arkun, Y. and Littman, H., " Studies on Modeling and Control of Spouted Bed Reactors. Part I: Reactor Modeling," Chem. Eng. Science, vol. 37, no. 4, pp. 567, 1982.

6. Arkun, Y., Smith, K. and Sawyer, G., "Part II: Dynamic Analysis and Control," Chem. Eng. Science, vol. 38, no pp. 897, 1983.

7. Arkun, Y. and Ramakrishnan, S., "Bounds on the Optimum Quadratic Cost of Structure-Constrained Controllers," IEEE Trans. on Automatic Control, vol. AC 27, no. 9, pp. 924, 1983.

8. Palazoglu, A., Manousiouthakis, B. and Arkun, Y., "Robustness Analysis of Process Control Systems: A Case Study of Decoupling Control in Distillation," I&EC Proc. Des. Dev., vol. 23, no. 1, pp. 93-101, 1984.

9. Arkun, Y. and Ramakrishnan, S., "Structural Sensitivity Analysis in the Synthesis of Chemical Process Control Systems," Chem. Eng. Science , vol. 39, p. 1167-1179, 1984.

10. Arkun, Y., Manousiouthakis, B. and Putz, P., "Robust Nyquist Array Methodology: A New Theoretical Framework for Analysis and Design of Robust Multivariable Feedback Systems", International J. of Control, vol.40, no.4, pp. 603-629, 1984.

11. Palazoglu, A., Manousiouthakis, B. and Arkun, Y., "Design of Chemical Plants with Improved Dynamic Operability in an Environment of Uncertainty," I&EC Proc. Des. Dev., vol. 24, pp. 802-813, 1985.

12. Arkun, Y., Manousiouthakis, B., Palazoglu, A., Guruswamy, V. and Putz, P., "Computer-Aided Analysis and Design of Robust Multivariable Control Systems for Chemical Processes," Computers and Chem. Eng. vol. 9, no. 1, pp. 27-59, 1985.

13. Palazoglu, A. and Arkun, Y., "Robust Tuning of Process Control Systems Using Singular Values and Their

Sensitivities," Chem. Eng. Comm. vol. 37, pp. 315-331, 1985.

14. Manousiouthakis, B., Savage, B. and Arkun, Y., "Synthesis of Decentralized Process Control Structures using the Concept of Block Relative Gain," AIChE J., pp. 991-1003, 1986.

15. Arkun, Y., Hollett, J., Canney, W. M. and Morari, M., "Experimental Study of Internal Model Control," I&EC Proc. Des. Dev., vol 25, pp. 102-108, 1986.

16. Palazoglu, A. and Arkun, Y., "Design of Chemical Plants in the Presence of Process Uncertainty: A Multiobjective Approach," Comp. and Chem. Eng. ,vol. 10, pp. 567-575, 1986.

17. Palazoglu, A. and Arkun, Y., "Design of Chemical Plants with Multiregime Capabilities and Robust Dynamic Operability Characteristics," Comp. and Chem. Eng. vol. 11, no. 3, pp. 205-216, 1987.

18. Manousiouthakis, V. and Arkun, Y., "A Hybrid Approach for the Design of Robust Control Systems," Int. J. of Control , vol. 45, no. 6. pp. 2203-2220, 1987.

19. Arkun, Y., "Dynamic Block Relative Gain and Its Connection with Stability and Performance of Decentralized Control Structures," Int. J. of Control, vol. 46, no. 4, pp. 1187-1193 , 1987.

20. Arkun, Y. and Morgan, C. O., "On the Use of the Structured Singular Value for Robustness Analysis of Distillation Column Control," Comp. and Chem. Eng. vol. 12, no. 4, p. 303-306, 1988.

21. Arkun, Y., " The Relative Sensitivity. A Dynamic Closed-loop Interaction Measure and a Design Tool," AIChE J. vol. 34, no. 4, pp. 672-675, 1988.

22. Calvet, J. P. and Arkun, Y., "Feedforward and Feedback Linearization of Nonlinear Systems with Disturbances," Int. J. Control, vol. 48, no.4, pp. 1551-1559, 1988.

23. Calvet, J-P. and Arkun,Y., "Feedforward and Feedback Linearization of Nonlinear Systems and Its Implementation Using IMC," I&EC Research, vol. 27, pp 1822-31 1988.

24. Arkun, Y., Charos, G. and Reeves, D., "A Graduate Course on Model Predictive Control," Chem. Eng. Ed., XXII(4), pp. 178-183, 1988.

25. Reeves, D. and Arkun, Y., "Interaction Measures for Nonsquare Decentralized Control Structures," AIChE J. , pp. 603, 1989.

26. Chiu, M. S. and Arkun, Y., "Parametrization of All Stabilizing IMC Controllers for Unstable Plants," Int. J. of Control, vol. 51, no. 2, pp. 329-340, 1990.

27. Calvet, J. P. and Arkun, Y., "Design of P and PI Stabilizing Controllers for Quasi Linear Systems," Comp. & Chem. Eng. ,vol 14,no. 4/5, pp. 415-427, May 1990.

28. Chiu, M. S. and Arkun, Y., "Decentralized Control Structure Selection Based on Integrity Considerations," I&EC Research,vol. 29, no.3 , pp. 369-373 , 1990.

29. Arkun, Y. and Downs, J., "A General Method to Calculate Input-Output Gains and The Relative Gain Array for Integrating Processes," Comp. & Chem. Eng., vol. 14,No. 10, pp. 1101-1110, 1990.

30. Charos, G., Arkun, Y. and Taylor, R., "Model Predicitive Constrained Control of an Industial Lime Kiln," TAPPI J., pp. 203-211, Feb. 1991.

31. Chiu, M-S. and Arkun,Y., "A New Result on Relative Gain Array, Niederlinski Index and Decentralized Stability

Condition: 2x2 Plant Cases," Automatica pp. 419-421,vol 27, no.2, March 1991.

32. Hernandez, E. and Arkun,Y., "Design of Pole Placement Controllers for Systems Described by Two-Dimensional Models," Chem.Eng.Science, Vol. 47, N0. 2, pp297-310, 1992.

33. Peterson, T., Hernandez, E., Arkun ,Y. and Schork, J.F., "A Nonlinear DMC Algorithm and Its Application to a Semi-batch Polymerization Reactor," Chem. Eng. Science, Vol. 47, No.4, pp. 737-753, 1992.

34. Hernandez, E. and Arkun,Y., "Study of the Control Relevant Properties of Backpropagation Neural Net Models of Nonlinear Dynamical Sytems," Comp. and Chem. Engng. , Vol. 16, No. 4, pp. 227-240, 1992.

35. Chiu, M-S. and Arkun,Y., "A Methodology for Sequential Design of Robust Decentralized Control Systems," Automatica, Vol. 28, No.5, pp. 997-1001,1992

36. Hook, B. D., Littman, H , Morgan, M and Arkun, Y., "A Priori Modelling of an Adiabatic Spouted Bed Catalytic Reactor," Canadian J. of Chem. Eng., Vol 70, pp. 966-982, 1992.

37. Arkun,Y. and Calvet, J-P., "Robust Stabilization of Input /Output Linearizable Systems Under Uncertainty and Disturbances," AIChE J., Vol. 38, No.8, pp. 1145-1156, 1992.

38. Charos, G. N. and Arkun, Y., " A Decentralized Quadratic Dynamic Matrix Control Algorithm," Journal of Proces Control, pp. 75-83, 1993.

39. Hernandez, E. and Arkun,Y. , "Control of Nonlinear Systems Using Polynomial ARMA Models," AIChE J., Vol. 39, No. 3, pp. 446, 1993.

40. Hernandez, E. and Arkun,Y. , "On the Global Solution to Nonlinear Model Predictive Control Algorithms which use Polynomial Models," Computers and chem Engng, Vol. 18, No.6, pp. 533-536, 1994.

41. Banerjee, A. and Arkun,Y., "Control Configuration Design as Applied to Tenneessee Eastmant Plant-Wide Control Problem," Computers and Chem Engng, Vol. 19, No. 4, pp. 453-480, 1995.

42. Sriniwas, G. R., Arkun,Y., Chien, I-L. and Ogunnaike ,B. A., "Identification and Control of a High-Purity Distillation Column: A Case Study," J. of Process Control, Vol.5, No. 3, pp 149-162, 1995.

43. Sriniwas, G. R., Arkun,Y. and Schork, F. J., "Estimation and Control of an α - Olefin Polymerization Reactor," J. of Process Control, Vol. 5, No. 5, pp 303-313, 1995.

44. Hernandez, E. and Arkun,Y. , "Stability of Nonlinear Polynomial ARMA Models and Their Inverse," Int. J. of Control, Vol. 63, No.5, 885-906, 1996.

45. Sriniwas, G. R. and Arkun,Y., "A Global Solution to the Nonlinear Model Predictive Control Algorithms Using Polynomial ARX Models," Computers and Chem Engng, Vol. 21, No.4, 431-439, 1997.

46. Sriniwas, G. R. and Arkun,Y., "Control of the Tennessee-Eastman Process using Input-Output Models," J. of Process Control, pp 387-400, 1997.

47. Rigopoulos, A., Arkun, Y. and Kayihan, F., "Identification of Full Profile Disturbance Models for Sheet Forming Processes," AIChE J., Vol. 43, No. 3, pp 727-740,1997.

48. Rigopoulos, A., Arkun, Y. and Kayihan, F., "Control Relevant Disturbance Modeling of Paper Machine Full Profile Properties Using Adaptive PCA," Pulp & Paper Canada, 98:11, 42-45, 1997.

49. Banerjee, A. , Arkun, Y., Pearson, R. and Ogunnaike, B., " Estimation of Nonlinear Systems using Linear Multiple Models," AIChE, Vol. 43, pp 1204-1226, 1997.

50. Rigopoulos, A. and Y. Arkun, "Pricipal Component Analysis in Estimation and Control of Paper Machines," Computers chem. Engng Vol. 20, Suppl., pp. S1059-1064, 1996.

51. Arkun, Y. and Kayihan, F., "A Novel Approach to Full CD Profile Control of Sheet Forming Processes, Computers and chem Engng," Vol. 22, No. 7-8, pp.945-962, 1998.

52. Banerjee, A. and Arkun, Y., "Model Predictive Control of Plant Transitions using a New Identification Technique for Interpolating Nonlinear Models," Journal of Process Control, Vol. 8, Nos.5-6, pp. 441-457, 1998.

53. Lee, T. K., Chiu, M-S. and Arkun,Y., "An Interaction Measure for the Selection of Partially Decentralized Control Structures," I&EC Research, Vol. 37, No. 12, p 4734, 1998.

54. Lakshmanan, N. and Arkun, Y., "Estimation and Control of Batch Processes using Multiple Models", International J. of Control. vol. 72, No. 7/8, 659-675, 1999.

55. Yaohui Lu and Yaman Arkun, "Quasi-min-max MPC Algorithms for LPV Systems, *Automatica*," vol. 36 (4), Pages 527-540. 2000.

56. Rigopoulos, A. and Y. Arkun, "KLE-(V)AR: A New Subspace Identification Technique with Application to Sheet Forming Processes," Journal of Process Control, 11 (6) (2001) pp. 679-698.

57. Haznedar, B. and Arkun, Y., "Single and Multiple Property Control of Sheet Forming Processes via Reduced Order Infinite Horizon MPC Algorithm," Journal of Process Control, Vol. 12/1, pp. 175-192, 2001.

58. Yaohui Lu and Arkun, Y., "A Scheduling Quasi-minmax Model Predictive Control Algorithm for Nonlinear Systems", J. of Process Control, 12, pp. 589-604, 2002.

59. McAvoy, T., Chen, R., Robinson, D. and Arkun, Y., "A New Approach to Defining a Dynamic Relative Gain", Control Eng. Practice, Vol. 11, Issue 8, 907-914, 2003.

60. Galan, O., Romagnoli, J.A., Palazoğlu, A. and Arkun, Y., "The Gap Metric Concept and Implications for Multilinear Model Based Controller Design," Ind. Eng. Chem. Res., 42, 2189-2197, 2003

61. Yurtsever, E., Palazoğlu, A. and Yaman Arkun "Conformational Similarities in Isomerization Dynamics of Clusters," The Journal of Physical Chemistry. *107*(31) pp 6025 – 6031, 2003

62. Rigopoulos, A. and Arkun, Y., "Reduced Order Controller Design for Sheet Forming Processes, ," IEEE Transactions on Control Systems Technology, Volume: 11 Issue: 5 , Page(s): 746 -756, Sept. 2003.

63. Palazoğlu, A., Gürsoy, A., Arkun, Y. and B. Erman, "Folding Dynamics of Proteins from Denatured to Native State: Principal Component Analysis", J. of Comp.Biology, 11 (6): 1149-1168, 2004.

64. Lu, Y., Arkun,Y. and A. Palazoğlu, "Real-time Application of Scheduling Quasi-Min-Max Model Predictive Control to a Bench-scale Neutralization Reactor", I&EC Research, 43, 2730-2735, 2004.

65. Aslan, E., Çamurdan, M., Palazoğlu, A. and Arkun, Y., "Multi-Model Scheduling Control of Nonlinear Systems Using Gap Metric", I&EC Research, 43, 8275-8283, 2004.

66. Guner, U., Arkun, Y., and Erman, B., "Optimum Folding Pathways of Proteins. Their Determination and Properties", J. of Phys. Chem., 124, 134911, 2006

67. Mestan, E., Turkay, M. and Arkun, Y., " Optimization of Operations in Supply Chain Systems Using Hybrid Systems Approach and Model Predictive Control" , I&EC Research, 45, 6493-6503, 2006.

68. Senturk, S., Baday, S., Arkun, Y. and Erman, B., "Optimum Foldıng Pathways for Growing Protein Chains", J. Phys. Biol. 4, 305-316, 2007.

69. Baday, S., Arkun, Y. and Erman, B., "Determination of Pair-wise Inter-residue Interaction Forces from Folding Pathways and their Implementation in Coarse-Grained Folding Prediction", Phys. Chem. Chem. Phys.,11, 1949-1961, 2009.

70. Arkun, Y., "Systems Thinking and Process Control Viewpoint for Academic Administration: Toward a Learning and Continuously Improving System", CACHE News, Summer 2009.

71. Arkun,Y and Erman,B, "Prediction of Optimal Folding Routes of Proteins that Satisfy the Principle of Lowest Entropy Loss: Dynamic Contact Maps and Optimal Control", PloS ONE, 4:10, 2010.

72. Arkun,Y and Gur, M, "Combining Optimal Control Theory and Molecular Dynamics for Protein Folding", Arkun Y , Gur M , 2012 Combining Optimal Control Theory and Molecular Dynamics for Protein Folding. PLoS ONE 7(1), 2012.

C. Conference Proceedings

1. Morari, M., Arkun, Y. and Stephanopoulos, G., "An Integrated Approach to the Synthesis of Process Control Structures," Joint Automatic Control Conference (JACC) Proc., pp. 243-253, 1978.

2. Stephanopoulos, G., Arkun, Y. and Morari, M., "Design of Optimizing Control Structures for Chemical Plants," ACS Symposium Series on Computer Applications to Chemical Engineering Process Design and Simulation, pp.207, September, 1979.

3. Arkun, Y. and Stephanopoulos, G., "Optimum Operation and Control of Chemical Plants via Constraint Control," JACC Proc., pp. 125-131, June, 1979.

4. Arkun, Y. and Stephanopoulos, G., "Optimizing Control of Industrial Chemical Precesses: State of the Art Review," JACC Proc., August 1980.

5. Arkun, Y., Morari, M. and Stephanopoulos, G., "A Unified Approach to the Synthesis of Control Structures for Complex Chemical Plants," 12th Symposium on Computer Applications in Chemical Engineering, vol. II, pp. 1139-1155, April 1979.

6. Arkun, Y., Putz, P. and Manousiouthakis, B., "Design of Robust Control Systems for Distillation Columns," Advances in Instrumentation, ISA, pp. 621, 1983.

7. Arkun, Y. and Ramakrishnan, S., "Structural Sensitivity Analysis in Controller Synthesis," American Control Conference (ACC) Proc., p. 1109, June 1982.

8. Arkun, Y., "A New Approach to the Synthesis of Process Control Systems," Pacific Chem. Eng. (PACHEC) IV. Proc., p. III-90, Korea, May 1983.

9. Manousiouthakis, B. and Arkun, Y., "Robust Controller Design. A Hybrid Approach," Am. Contr. Conf. Proc., pp. 1277-1282, June 1984.

10. Palazoglu, A. and Arkun, Y., "Controller Tuning via Singular Value Sensitivity Analysis," Am. Contr. Conf. Proc., pp. 919-924, June 1984.

11. Manousiouthakis, B., Savage, B. and Arkun, Y., "Selection of Decentralized Process Control Structures," Am. Contr. Conf. Proc., pp. 299-305, June1985.

12. Manousiouthakis, B. and Arkun, Y., "Design of Robust Decentralized Process Control Systems," Am. Contr. Conf. Proc., pp. 1304-1309, June1985.

13. Palazoglu, A. and Arkun, Y., "Studies on the Design of Robust Chemical Plants," IChemE Symp. Series, no. 92, pp. 457-469, 1985.

14. Arkun, Y. and Manousiouthakis, B., "Dynamic Block Relative Gain and its Role in The Design of Robust Decentralized Control," ACC Proc., pp. 11-17, 1986.

15. Arkun, Y. and Morgan,C., "Robustness Analysis of Distillation Control Schemes Using Structured Singular Values," ACC Proc., pp 1772-1777, June 1987.

16. Arkun, Y., "New Concepts in the Synthesis of Decentralized Control Structures: Block Relative Gain, Dynamic Block Relative Gain and the Relative Sensitivity," ACC Proc., pp. 1331-1336, June 1987.

17. Calvet, J-P. and Arkun, Y., "Robust Control Design for Uncertain Nonlinear Systems Under Feedback Linearization," 28th IEEE CDC Proc., pp. 107-114, Florida, December, 1989.

18. Calvet, J. P. and Arkun, Y., "Stabilization of Feedback Linearized Nonlinear Processes Under Bounded Perturbations," Am. Contr. Cont. Proc., pp. 747-753, June 1989.

19. Arkun, Y., Hernandez, E., Peterson, T. and Schork, F. J., "Nonlinear Predictive Control of a Semi-Batch Polymerization Reactor by an Extended DMC," Am. Contr. Conf. Proc., pp. 1534-1540, June 1989.

20. Chiu, M. S. and Arkun, Y., "Parametrization of All Stabilizing IMC Controllers and a Sequential Design Procedure," Am. Contr. Conf. Proc., pp. 554-560, June 1989.

21. Calvet, J-P. and Arkun, Y., "A Lyapunov Approach to Stabilize Feedback Linearized Nonlinear Systems with Disturbances," IFAC Symposium Proceedings on Nonlinear Control Systems Design, Capri, Italy, June 14-16, 1989.

22. Chiu, M. S. and Arkun, Y., "A μ Approach for Sequential Design of Decentralized Control Systems," ACC Proc., pp. 2140-2141, May 1990.

23. Hernandez, E. and Arkun, Y., "Neural Network Modeling and an Extended DMC Algorithm to Control Nonlinear Systems," ACC Proc., pp. 2454-2460, May 1990.

24. Chiu, M-S. and Arkun,Y., "A New Result on Relative Gain Array, Niederlinski Index and Decentralized Stability Condition: 2x2 Plant Cases," BILCON Conf. on. Communication, Control and Signal Processing, Ankara, Turkey, pp 850-857, July 1990.

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26. Kravaris, C. and Arkun, Y., "Geometric Nonlinear Control-an Overview," Proceedings of CPC IV, pp 477-515 South Padre, Texas, February, 1991.

27. Hernandez, E. and Arkun, Y., "A Nonlinear DMC Controller: Some Modeling and Robustness

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29. Simminger,J., Hernandez, E., Arkun,Y. and Schork, F. J., "A Constrained Multivariable Nonlinear Model Predictive Controller Based on Iterative QDMC," IFAC International Symposium ADCHEM'91, Toulouse, France, Oct. 1991.

30. Ogunnaike , B. A., Chien, I-Lung and Arkun, Y., "Nonlinear Model Predictive Control of High Purity Distillation Columns Using Polynomial ARMA Models", European Control Conference, Netherlands, 1993

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36. Rigopoulos, A., Arkun, Y. and Kayihan, F., " Control Relevant Disturbance Modeling of Paper Machine Full Profile Properties Using Adaptive PCA, ". Control Systems'96, pp. 35-39, Halifax, Canada, May,

37. Rigopoulos, A., Arkun, Y. and Kayihan, F., "Full CD Profile Control of Sheet Forming Processes using Adaptive PCA and Reduced Order MPC Design", ADCHEM97 pp 396-401, Banff, Canada, June, 1997.

38. Rigopoulos, A., Arkun, Y. and Kayihan, F., " Model Predictive Control of CD Profiles in Sheet Forming Processes using Full Profile Disturbance Models Identified by Adaptive PCA," ACC Proc., pp 1468-1472, June, 1977.

39. Wisnewski, P. A., Doyle III, J. F, Kayihan, F. and Arkun, Y., "Measurement Selection for Model Predictive Control of the Weyerhaeuser Benchmark Digester Problem", ADCHEM97, pp 383-388, Banff, Canada, June, 1997.

40. Banerjee, A. and Y. Arkun, "Model Predictive Control of Plant Transitions using a New Identification Technique for Interpolating Nonlinear Models," ADCHEM97, pp 547-552, Banff, Canada, June, 1997.

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43. Rigopoulos, A. and Arkun, Y., "The use of CVA towards identification of dynamic models for control of sheet forming processes. A comparison with PCA-(V) AR modeling," Annual AIChE Mtg., Miami Beach, FL, Nov., 1998.

44. Rigopoulos, A. and Arkun, Y., "Reduced order MPC design for CD profile control of sheet forming processes: handling of actuator constraints and performance loss," Annual AIChE Mtg., Miami Beach, FL, Nov., 1998.

45. Kayihan, F., Arkun,Y. and F. J. Doyle, "On-line visualization and monitoring of pulping and paper making processes", Control Systems, , Finland, 1998.

46. Yaohui Lu and Yaman Arkun, Infinite Horizon Model Predictive Control Algorithms for Polytopic Linear Parameter Varying Systems, presented in *AICHE annual meeting*, , Miami, FL, November, 1998.

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48. Yaohui Lu and Yaman Arkun, "A Scheduling Quasi-min-max Model Predictive Controller for LPV Systems," Proceedings of American Control Conference, Pages 2272-2276, San Diego,CA, June 1999.

46. Galan, O, J.A. Romagnoli, Y. Arkun, and A. Palazoglu, "On the use of gap metric for model selection in multi-linear model-based control," ACC Proceedings, pp. 3742-3746, June, 2000.

47. Galán, O., J.A. Romagnoli, Y. Arkun, A. Palazoglu, "Use of Gap Metric for Model Selection in Multi-Model Based Control Design: An Experimental Case Study of pH Control", Proceedings of European Symposium on Computer Aided Design Engineering - 10, S. Pierucci (Editor), pp. 211-216, June, 2000.

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53. T. McAvoy, R. Chen, Y. Arkun, D. Robinson and P. D. Schnelle, "A New Approach to defining a Dynamic Relative Gain", Proc. of Dynamics and Control of Process Systems, DYCOPS'6, Cheju Island, Korea, June 3-6, 2001.

54. Lu, Y., Arkun, Y. and Palazoğlu, A., "Real-time Application of Scheduling Quasi-Minmax Model Predictive Control to a Bench-Scale Neutralization Reactor," ADCHEM Jan. 2004, Hong Kong .

55. Galan, O., Romagnoli, J.A.,Palazoğlu, A. and Arkun, Y., "Experimental Verification of GAP Metric as a Tool for Model Selection in Multi-Linear-Model-Based Control," ADCHEM Jan. 2004, Hong Kong .

56. Aslan, E., Çamurdan, M., Palazoğlu, A. and Arkun, Y., "Multi-Model Scheduling Control of Nonlinear Systems Using Closed-Loop Gap Metric", American Control Conference, Boston, June 2004.

57. Palazoglu, A., Arkun, Y., Erman, B. and Gürsoy, A, "Protein Folding as a Challange for Systems Biology", FOSBE (Foundations of Systems Biology in Engineering), Proc. pp. 349-354, Stuttgart, June, 2007.

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Statistical Techniques", ADCHEM09 Proceedings, 171-176, İstanbul, July, 2009.

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60. Arkun, Y. and Gür, Mert, "Protein Folding Using Coarse-Grained Optimal Control and Molecular Dynamics", IFAC World Congress, Milano, Italy, 14213-14216, Aug. 28-Sept. 2, 2011.

CONFERENCE PRESENTATIONS

1. Arkun, Y. and Stephanopoulos, G., "Interaction Between Process Design and Control: A Study on Operability," AIChE Mtg., San Francisco, Nov., 1979.

2. Arkun, Y. and Stephanopoulos, G., " A Steady-State Design Approach Towards Optimal Operation of Chemical Plants via Constraint Control," Can. Chem. Eng. Conf., Sarnia, Ontario, 1979.

3. Arkun, Y. and Smith, K., "Dynamic Analysis and Control of Spouted Bed Reactors," AIChE Mtg., New Orleans, Nov., 1981.

4. Arkun,Y. and Ramakrishnan, S., "Structural Sensitivity Analysis in Controlller Synthesis," AIChE Mtg., Los Angeles, Nov., 1982.

5. Arkun, Y., Manousiouthakis, B., Palazoglu, A. and Putz, P., "Computer-Aided Analysis and Design of Robust Multivariable Control Systems for Chemical Processes," AIChE Mtg., Anaheim, May, 1984.

6. Arkun, Y. and Hollett, J., "Experimental Evaluation of Internal Model Computer Control," ACS National Mtg., April, 1984.

7. Arkun, Y. and Manousiouthakis, B., "Synthesis of Control Structures for Large Systems Using Block Relative Gain," AIChE Mtg., Chicago, paper no. 103h., Nov., 1985.

8. Arkun,Y., "Computer Aided Design of Robust Control Systems," IFAC Conf. on Microcomputer Applications," Istanbul, Turkey, July, 1986.

9. Calvet, J-P. and Arkun,Y., "Feedforward and Feedback Linearization of Nonlinear Systems and Its Implementation Using IMC," AIChE Mtg., New York, paper no. 83c, Nov., 1987.

10. Hook, B.D., Littman, H., Morgan, M. and Arkun, Y., "An Axisymetric Model for An Adiabatic Spouted Bed Reactor with a Highly Exothermic Catalytic Reaction," AIChE Mtg., paper no. 162d, Washington, Nov., 1988.

11. Reeves, D. E. and Arkun, Y., "Interaction Measures for Nonsquare Decentralized Control Structures," AIChE Mtg., paper no.128b, Washington, Nov., 1988.

12. Calvet, J-P. and Arkun,Y., "Design of Robust Controllers for Uncertain Nonlinear Processes with Bounded Disturbances," AIChE Mtg. paper no. 144b., San Francisco, Nov., 1989.

13. Hernandez, E. and Arkun, Y., " Applications of Two Dimensional System Theory in Process Control," AIChE Mtg., Chicago, paper no. 211a, Nov., 1990.

14. Reeves, D. E., Arkun, Y. and Downs, J., "New Results on Integrating Systems," AIChE Mtg., Chicago, poster no.

312l, Nov., 1990.

15. Schork, F.J., Arnold, B.D. and Arkun,Y.," The Application of Kalman Filtering Techniques for Reactor Feed Composition Estimation," AIChE Mtg., Houston, April, 1991.

16. Arkun,Y., Schork, F.J. and Peterson,T., "Control of a Semibatch Polymerization Reactor by Nonlinear Model Predictive Control," poster at Eng. Found. Conf. on Polymer Reaction Engng, Santa Barbara, March , 1991.

17. Hernandez, E. and Arkun,Y.,"Identification and Control of Nonlinear Systems Using Polynomial ARMA Models," AIChE Mtg, Nov., 1991.

18. Simminger, J., Hernandez, E., Arkun,Y. and Schork, F. J., "A Nonlinear Model Predictive Controller Based on Iterative QDMC," AIChE Mtg, Nov., 1991.

19. Hernandez, E. and Arkun, Y., "Nonlinear Control Using Polynomial ARMA Models," SIAM Conference on Control and its Applications, Minneapolis, Sept., 1992.

20. Hernandez, E. and Arkun, Y., "Stability and Invertibility of Nonlinear Input / Output Models," AIChE Mtg., Miami, Nov., 1992.

21. Banerjee, A. and Arkun,Y., "Control Configuration Design as Applied to Tenneessee Eastmant Plant-Wide Control Problem," AIChE Mtg., St. Louis, Nov., 1993.

22. Banerjee, A., Arkun,Y., Ogunnaike, B. A. and Pearson, R., "Robust Nonlinear Control by Scheduling Multiple Model Based Controllers," Annual AIChE mtg, San Francisco, 1994.

23. Arkun,Y., "Model Predictive Control : A Tutorial", National AIChE mtg, Atlanta, 1994.

24. Sriniwas, G. R., Arkun,Y., Chien, I-L. and Ogunnaike, B. A., "Identification and Control of a High-Purity Distillation Column: A Case Study," National AIChE mtg, Atlanta, 1994.

25. Banerjee, A., Arkun,Y., Ogunnaike, B. A. and Pearson, R., "Multiple Model Based Estimation of Nonlinear Systems," Annual AIChE Mtg., 1995.

26. Banerjee, A., Arkun,Y., Ogunnaike, B. A. and Pearson, R., "Robust Multiple Model Based Control of Nonlinear Systems," Annual AIChE Mtg., 1995.

27. Da Rold, A., Sriniwas, G. R., Arkun,Y. and Schork, F.J., "Optimal Estimation of Multi-rate Delayed Systems: Application to an α Olefin Polymerization Reactor", ICheaP-2, Florence, Italy, May, 1995.

28. Rigopoulos, A. and Y. Arkun, "Principal Component Analysis in Estimation and Control of Paper Machines," Weyerhaeuser Workshop on Modeling and Control of Digesters and Paper Machines, Tacoma, WA, June 19-20, 1995.

29. Sriniwas, G. R. and Arkun,Y., " Optimization and Convergence Issues for MPC Algorithms using Polynomial ARX Models", Annual AIChE Mtg., 1995.

30. Banerjee, A. and Arkun,Y., "Self Scheduling MPC for LPV Systems," Annual AIChE Mtg., 1996.

31. Lakshamanan, N. and Arkun, Y., " Control of Nonlinear Batch Processes using Self-Scheduling MPC," Annual AIChE Mtg., Miami Beach, FL, Nov., 1997.

32. Lu, Y. and Arkun, Y., "Model Predictive Control of Polytopic Linear Parameter Varying Plants," Annual AIChE Mtg., 1998.

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36. Yaohui Lu and Yaman Arkun, "Polytope Updating in Quasi-min-max MPC Algorithms," Proceedings of ADCHEM, Pisa, Italy, June, 2000.

37. B. Haznedar and Arkun, Y., "Implementation of Reduced Order Infinite Horizon MPC to Sheet Forming Processes, *AICHE National meeting*, Atlanta, March, 2000.

38. J. Tabb and Arkun,Y., "Monitoring of Sheet Forming Processes using Adaptive Wavelet Decomposition," *AICHE National meeting*, Atlanta, March, 2000.

36. Yaohui, Lu and Yaman Arkun, "Approximation error and model/plant mismatch considerations in scheduling quasi-minmax MPC algorithms for nonlinear processes," *AICHE annual meeting*, Reno, NV, November 4-9, 2001.

37. Mestan, E., Türkay, M. and Arkun, Y., "Model Predictive Control Methods in Supply Chain Management Problems". INFORMS, Nov. 2002.

38. Mestan, E., Türkay, M. and Arkun, Y., "Model Predictive Control of Supply Chain Systems". EURO/INFORMS, Istanbul, July 2002.

39. Mestan, E., Arkun, Y. and Türkay, M., "Scheduling in Supply Chain Systems Using Model Predictive Control," Session 445, Control of Hybrid Systems, AIChE Annual Meeting, San Francisco, Nov. 2003.

40. Arkun,Y., Palazoğlu,A., Erman,B. and A. Gürsoy, "Characterization of Dynamics of Protein Folding from Denatured to Native State Using KL Expansion and Wavelets", Session 457, AIChE Annual Meeting, San Francisco, Nov. 2003.

41. Özal, T., Arkun, Y. and Erman, B, "Kaba Ölçekli Optimal Kontrol ve Geri Beslemeli Moleküler Dinamik Yöntemiyle Protein Katlanma Dinamiğinin Analizi", Ulusal Kimya Mühendisliği Kongresi, pp.167-168, 22-25 Haziran 2010.

42. Arkun, Y. and Gür, Mert, "Protein Folding Using Coarse-Grained Optimal Control and Molecular Dynamics", IFAC World Congress, Milano, Italy, 14213-14216, Aug. 28-Sept. 2, 2011.

43. Şıldır, H., Canan, U., Arkun, Y., Cakal, B., Gokce, D., and Kuzu, E., "Modeling and Control of an Industrial Hydrocracker Using the Dicrete and Continuous Lumping Methods and Model Predictive Control", AIChE Mtg., Oct. 20, 2011.

AWARDS

Donald P. Eckman Award, presented by the American Automatic Control Council in recognition of outstanding contributions in the field of automatic control, 1986.

Outstanding Teacher Award, presented by the AIChE Student Chapter of Georgia Tech., 1986.

Tübitak (Turkish Scientific and Technological Council) Science Award, 2003.

Somer Professional Award in Chemical Engineering given by Middle East Technology University, October, 2003.

TUBA (Turkish Academy of Sciences) member, Dec. 2005.

IFAC (International Federation of Automatic Control) Council member (2011-2014).

TUBITAK Scientific Board member, 2011.

SEMINAR PRESENTATIONS

1. "Design of Steady-State Optimizing Control Structures for Chemical Processes," Control Science Center, Univ. of Minnesota, Feb. 1979.

2. "Design and Control of Chemical Plants with Multiregime Capabilities," Stevens Institute of Technology, Feb. 1982.

3. "Robustness Problems in Design and Operation of Multiregime Chemical Plants," Kyoto University, Kyoto, Japan, May 1983.

4. "Dynamic Analysis and Control of Spouted Bed Catalytic Reactors," ARCO Chemicals Co., Philadelphia, Sept. 1983.

5. "Synthesis of Control Systems for Chemical Plants ," University of Bosphorous, Istanbul, Turkey, Aug. 1983.

6. "Design of Chemical Plants with Multiregime Capabilities," University of Bosphorous, Istanbul, Turkey, Aug. 1983.

7. "Robustness Issues in Design and Control of Chemical Plants," University of Massachusetts, April 1984.

8. "Robustness Issues in Design and Control of Chemical Plants," University of California, Santa Barbara, May 1984.

9. "Design of Robust Control Systems," PLAPIQUI, Universidad National del Sur, Argentina, Aug. 1984.

10. "Studies on Design and Control of Chemical Plants. An Overview of Recent Results and A New Formulation for the Future," Argentinian Petrochemical Institute, Buenos Aires, Aug. 1984.

12. "Robustness Issues in Process Control," Cornell University, Sept. 1984.

12. "Synthesis of Control Systems for Chemical Plants. A New Adventure Into An Old Territory," University of California , Davis, Jan. 1985.

13. "Robustness Issues in Design and Control of Chemical Plants," Purdue University, Oct. 1984.

14. "Design of Robust Control Systems," Georgia Institute of Technology, Oct. 1984.

15. "Robustness Issues in Design and Control of Chemical Plants," Clarkson College, 1985.

16. "Robustness Studies in Process Design and Control ," The City College of CUNY, New York, Feb. 1985.

17. "Synthesis of Decentralized Control Structures for Chemical Plants," Carnegie-Mellon University, March 1985.

18. "Synthesis of Decentralized Control Structures for Chemical Plants Using the Concept of Block Relative Gain," Technical University of Denmark, Lyngby, Denmark, April 1985.

19. "Dynamic Process Operability," Auburn University, Nov. 1985.

20. "Synthesis of Decentralized Control Structures for Chemical Plants," ALCOA, Pittsburg, Nov. 1985.

21. "Recent Advances in Process Control," Weyerhauser Co., Tacoma, Seattle, June 1986.

22. "Synthesis of Decentralized Control Structures," University of Maryland, Nov. 1986.

23. "Block Relative Gain and Synthesis of Decentralized Control Structures," University of Pennsylvania, Oct.,1986.

24. "Nonlinear Process Control," University of Alabama, May, 1987.

25. "Decentralized Control of Chemical Processes," University of Notre Dame, Oct. 1987.

26. "Nonlinear Process Control : Feedback and Feedforward Linearization of Nonlinear Systems," University of Texas, Austin, April 1988.

27. "Nonlinear Process Control - Feedback and Feedforward Linearization of Nonlinear Systems," N.C. State University, September 1988.

28. "Synthesis of Process Control Structures," General Electric Co., Schenectady, NY, July, 1988.

29. "Process Control Research at Georgia Tech," Tennessee Eastman Co., Kingsport, TN, July, 1988.

30. "Nonlinear Process Control," University of Michigan, March 1989.

31. "New Trends in Process Control," Milliken Co., Spartanburg, April, 1989.

32. "Nonlinear Model Predictive Control," Case Western Reserve University, November, 1989.

33. "Nonlinear Model Predictive Control," Texas A&M University, April, 1990.

34. "Nonlinear Model Predictive Control and Neural Networks," Shell Co. Westhollow Research Center, April 1990.

35. "Nonlinear Model Predictive Control," IIT, Chicago, April, 1990.

36. "Nonlinear Model Predictive Control," Process Modeling and Control Center, Lehigh University, Oct. 1990.

37. "Nonlinear Process Control," LSU, Oct 1991.

38. "Nonlinear Process Control," DuPont, Wilmington, Oct 1991.

39. "Nonlinear Process Control," University of Florida, Jan, 1992.

40. " Recent Research Trends in Process Control," Bogazici University, Turkey, March, 1992.

41. " Recent Research Trends in Process Control," Middle East Technical University, Turkey, March, 1992.

42. "Nonlinear Control Using Polynomial ARMA Models and Neural Nets," DuPont, Wilmington, Sept., 1992.

43. "Nonlinear Model Predictive Control", FSU, Dec, 1993.

44. "Research and Practice in Advanced Process Control," Phillips Petroleum, May 1993.

45. "Dynamic Model Identification and Model Predictive Control," Weyerhaeuser Co., Sept 1993.

46. "Nonlinear Identification and Model Predictive Control," SHELL Amsterdam, July, 1993.

47. "Nonlinear Identification and Model Predictive Control," IPST, Georgia Tech , April, 1994.

48. "Model Predictive Control," School of Mechanical Engineering, GeorgiaTech, May, 1994.

49. "Transition Control," University of Stuttgardt, Germany, September 1995.

50. "Transition Control," University of Aachen, Germany, September 1995.

51. "Transition Control," University of South Carolina, November, 1995.

52. "Estimation and Control of Sheet Forming Processes," University of Wisconsin, November, 1996.

53. "Self Scheduling Model Predictive Control using Linear Parameter Varying (LPV) Models," Control Center, University of Minnesota, October, 1997.

54. "Monitoring and Control of Sheet Forming Processes," University of Delaware, February, 1998.

55. "Monitoring and Control of Sheet Forming Processes," UCLA, February, 1998.

56. "Monitoring and Control of Sheet Forming Processes," Bogazici University, Istanbul, Turkey, March, 1998.

57. "Self Scheduling Model Predictive Control using Linear Parameter Varying (LPV) Models," Bilkent University, Ankara, Turkey, March, 1998.

58. "Control of Sheet Forming Processes using Reduced Order MPC," University of Maryland, October, 1998.

59. "Monitoring and Control of Sheet Forming Processes," University of Delaware, February, 1998.

60. "Monitoring and Control of Sheet Forming Processes," UCLA, February, 1998.

61. "Monitoring and Control of Sheet Forming Processes," Boğazici University, Istanbul, Turkey, March, 1998.

62. "Self Scheduling Model Predictive Control using Linear Parameter Varying (LPV) Models," Bilkent University, Ankara, Turkey, March, 1998.

63. "Control of Sheet Forming Processes using Reduced Order MPC," University of Maryland, October, 1998.

64. "Control of Large Scale Complex Systems: A Case Study on a Paper Machine," Boğaziçi University, Istanbul, May, 2002.

64. "Process Control and Different Worlds", TÜBA, Ankara, December, 2007.

65. "Process Control and Different Worlds", Koç University Science Club, 2008.

INVITED KEYNOTE ADDRESSES/LECTURES

1. Arkun,Y., "Dynamic Process Operability. Important Problems, Recent Results and New Challenges," Chemical Process Control III, Asilomar, CA., January 1986.

2. Arkun,Y., "Synthesis of Decentralized Control Structures for Chemical Processes," IEEE CSS Workshop: Current Issues in Decentralized and Distributed Control, Ohio State Univ., Sept., 1987.

3. Arkun, Y, "Current Research Trends in Process Control", Turkish Institute of Chemical Engineers, Ankara, Turkey, Sept., 1994.

4. Arkun, Y, "Control of Nonlinear Systems Using Input-Output Models," NATO ASI on Methods of Model Based Control, Antalya, Turkey, August, 1994.

5. Arkun,Y., "Advanced Control Technology Being a Reality," PHARMTECH Conference, Atlantic City, NJ, Sept., 1993.

6. Arkun, Y, "Self-Scheduling MPC Using LPV Models," NATO ASI on Methods of Nonlinear Model Based Control, Antalya, Turkey, August, 1997.

7. Arkun, Y, "Scheduling Model Predictive Control: Algorithms and Applications in Process Control", Second Chemical Engineering Conference for Collaborative Research in Eastern Meditterranean, Middle East Technical University, May 20-24, 2001.

9. "Control of Supply-Chain Systems," Robust Engineering Workshop at Univ. of California, Davis, Sept., 2003.

10. "Future of Chemical Engineering. Trends and Opportunities", 6. Ulusal Kimya Mühendisliği Kongresi, Ege Üniversitesi, İzmir, Sept., 2004.

11. "Process Control and Different Worlds", 8th National Chemical Engineering Congress, Malatya, Turkey, 26-29 August, 2008.

CONFERENCE ORGANIZING COMMITTEES

Chairman of National Organizing Committee for the IFAC Workshop on Model Based Process Control, Atlanta, Georgia, June 1988.

Vice-Chairman for CPC (Chemical Process Control) IV Conference, South Padre Island, Texas , Feb., 1991.

Member of the Organizing Committee for the SIAM Control Theory Conference, Minnesota, 1992.

Member of the International Program Committee for IFAC/ IChemE Workshop on Interactions between Process Design and Control ,UK, 1992.

National Organizing Committee Member for the IFAC Workshop on Integration of Process Design and Control, Baltimore, MD, June 1994.

Chairman, IFAC ADCHEM'97, International Symposium on Advanced Control of Chemical Processes, Banff, Canada, June 9-11, 1997.

Co-Organizer, NATO ASI on Nonlinear Model Based Control, Antalya, Turkey, August 1997.

Member of the International Program Committee for ADCHEM 2000, International Symposium on Advanced Control of Chemical Processes, Pisa, Italy, June 2000.

Local Coordinator for the Systems Group of Second Chemical Engineering Conference for Collaborative Research in Eastern Mediterranean, Middle East Technical University, May 20-24,2001

Programming Committee Member for TOK, Otomatik Kontrol Ulusal Toplantısı. METÜ, Ankara, 2002.

Member of the International Program Committee for ADCHEM 2003, International Symposium on Advanced Control of Chemical Processes, Hong Kong, June 2003.

Member of the International Program Committee for IFAC DYCOPS (Dynamics and Comtrol of Process Systems), Boston, July 5-7, 2004

Member of the International Program Committee for International Symposium on Advanced Control of Industrial Processes ADCONIP-2008: 4-6 May 2008, Jasper, Alberta, Canada

NOC Chairman, IFAC ADCHEM'09, International Symposium on Advanced Control of Chemical Processes, Istanbul, Turkey, June 12-15, 2009.

Area Chair, Optimization and Scheduling, ADCHEM 2012 (International Symposium on Advanced Control of Chemical Processes), Singapore, July 10-13, 2012.

PROFESSIONAL SOCIETIES

1. AIChE Fellow 2007
2. AIChE member. Member of CAST (Computing and Systems Technology) Divison of AIChE.
3. Chairman for the Systems and Control Area 10b of AIChE, 1988-1990.
3. AIChE Director to American Automatic Control Council, 1989-1991.
4. Academic Trustee to CACHE (Computer Aids in Chemical Engineering) Corporation, November 1986 – 1995.
5. Secretary of CACHE, 1992- 1994.

6. CAST Director, 1994-1997.
7. Chairman of the D. P. Eckman Award Committee of American Control Council, 1998,1999.

EDITORSHIP

1. Editor for *Automatica*, the Journal of International Federation of Automatic Control (IFAC), 1988-1997.
2. Editorial Board Member for the *Journal of Process Control*.
3. Advisory Board Member for *DOGA Turkish Journal of Engineering and Environmental Sciences*.
4. North American Editor of *Journal of Process Control*, 1999-2000.