

# TURGAY ERTEKIN, B.Sc, M.Sc., Ph.D.

• PENN STATE UNIVERSITY • UNIVERSITY PARK, PA 16870 •  
• (814) 865-6082 •

## Professor Emeritus Petroleum and Natural Gas Engineering

### EDUCATION

Middle East Technical University, Ankara, Turkey, B.Sc., 1969, Petroleum Engineering  
Middle East Technical University, Ankara, Turkey, M.Sc., 1971, Petroleum Engineering  
Pennsylvania State University, University Park, USA, Ph.D., 1978, Petroleum and Natural Gas Engineering

### ACADEMIC AND ADMINISTRATIVE POSITIONS

July 2017 to present	Professor Emeritus of Petroleum and Natural Gas Engineering The Pennsylvania State University
July 2013 to July 2017	Head, John and Willie Leone Family Department of Energy and Mineral Engineering, the George E. Trimble Chair in Earth and Mineral Sciences, the Pennsylvania State University
May 2013 to May 2014	Co-Director, Institute of Natural Gas Research (INGaR), Pennsylvania State University
July 2001 to Present	Professor of Petroleum and Natural Gas Engineering and George E. Trimble Chair in Earth and Mineral Sciences, Pennsylvania State University
July 1998 to June 2001	Associate Head, Department of Energy and Geo-Environmental Engineering
July 1987 to Present	Professor of Petroleum and Natural Gas Engineering, Pennsylvania State University
July 1984 to January 2015	Chairman of Petroleum and Natural Gas Engineering, Pennsylvania State University
July 1983 to July 1984	Associate Professor of Petroleum and Natural Gas Engineering, Pennsylvania State University
December 1978 to July 1983	Assistant Professor of Petroleum and Natural Gas Engineering, Pennsylvania State University
November 1975 to December 1978	Research and Teaching Assistant, Petroleum and Natural Gas Engineering, Pennsylvania State University
December 1974 to November 1975	Instructor, Department of Petroleum Engineering, Middle East Technical University
July 1970 to December 1974	Research and Teaching Assistant, Department of Petroleum Engineering, Middle East Technical University

## **COMPLETED AND ACTIVE RESEARCH PROJECTS (FUNDED PROJECTS)**

Design of Advanced Well Structures in Unconventional Reservoirs, principal investigator, 2013 – 2015, Quantum Reservoir Impact.

Identification and Characterization of Flow Units in an Angolan Offshore Field, principal investigator, 2012-2013, Chevron Oil Company.

Impact of Multiple Well Interferences and Brine Extraction on Pressure Limits, principal investigator, 2012, NETL/Department of Energy.

Discrete Fracture formulation to Represent Double-Porosity Systems via Single-Porosity Formulations, principal investigator, 2011-2013, Hanyang University.

Development of an Advanced Carbon Sequestration Numerical Simulator Designed for Field Applications, principal investigator, 2010-2012, NETL/Department of Energy.

Prediction of Temperature Gradients in Horizontal Wells, principal investigator, (2010-2012), Petrobras.

Unconventional Reservoir Modeling Using Artificial Neural Networks, principal investigator, 2009-2010, Chevron Oil Company.

Mathematical Modeling of Tar Behavior During the Depletion of Giant Oil Reservoir-Aquifer Systems, 2006-2008, Principal Investigator, ARAMCO.

Use of Artificial Intelligence in Field Development Applications, 2006-2007, principal investigator, BP.

Numerical Simulation of Carbon Dioxide Sequestration in Coal Seams, 2001-2005, principal investigator, NETL/Department of Energy.

Petroleum GeoSystems Initiative at Penn State, co-principal investigator (1999-2006)

Artificial Neural Network Development for Petroleum Engineering Applications, Consortium for Virtual Operations Research (CVOR), co-principal investigator, 1997-2005.

Development and Application of a Compositional Coalbed Methane Production Model, principal investigator, 1990-1996 Meridian Oil.

An Experimental and Theoretical Study to Relate Uncommon Rock/Fluid Properties to Oil Recovery, 1989-1994, co-principal investigator, Department of Energy.

Adsorption and Transport in Coalbed Reservoirs, 1990-1991, co-principal investigator, Gas Research Institute.

New Strategies for In Situ Characterization of Coal, 1987-1990, principal investigator, Department of Energy Project.

Reservoir Analysis of Blanket Sands Using a Numerical Multi-Mechanistic Model, 1987-1989, co-principal investigator, Department of Energy Project.

Measurement While Drilling Employing Magnetic Resonance Technology for Oil Exploration, 1987-90, co-principal investigator, Advanced Technology Center of Central and Northern Pennsylvania.

Development of Multi-Dimensional, Numerical Coal Seam Degasification Models, 1984-86, principal investigator, United States Steel Corporation/Unconventional Energy Group/Gas Research Institute Project.

Development of Higher Accuracy Finite Difference Schemes for Three-Dimensional Models, 1985-1986, principal investigator, Mineral Research Institute of Pennsylvania Project.

Review of Petroleum and Natural Gas Engineering Curriculum and Laboratory Equipment Needs, 1985-1986, principal investigator, Mineral Research Institute of Pennsylvania Project.

The Calibration of the Peng-Robinson Equation of State by the Primal-Dual Simplex, 1985-1986, principal investigator, Mineral Research Institute of Pennsylvania Project.

In-Situ Determination of Coal-Bed Methane Reserves and Sorption Characteristics, 1984-1985, principal investigator, Mineral Research Institute of Pennsylvania Project.

Tertiary Recovery of Pennsylvania Grade Crude Oil with Surfactant Solutions, 1979-1984, faculty associate and group leader, Cooperative Research Program supported by major oil companies and Department of Energy

Numerical Simulation of Simultaneous Flow of Methane and Water in Heterogeneous Coal Seams, 1981-1982, principal investigator, United States Steel Corporation/Gas Research Institute Project.

Laboratory Investigation of the Applicability of Steam Injection in Pennsylvania Oil Fields, 1980-1981, co-principal investigator, Mineral Research Institute of Pennsylvania Project.

Establishment of a Data Bank for Pennsylvania Oil Fields, 1980-1981, co-principal investigator, Mineral Research Institute of Pennsylvania Project.

Tertiary Recovery of Pennsylvania Grade Crude Oil with Surfactant Solutions, 1978-1981, faculty associate, Department of Energy Research Project.

Coal Seam Methane Degasification, 1979-1980, faculty associate, Department of Energy, subcontract to TRW.

Numerical Simulation of Compaction Subsidence Phenomena in a Reservoir for Two-Phase Non-isothermal Flow Conditions, 1975-1976, research assistant, The Pennsylvania State University.

Investigation of the Potentials of Cyclic Carbon Dioxide Injection in Extensively Fractured Reservoirs Carrying High Viscosity Oil, 1971-1972, Project MAG 362, supported by the Turkish Scientific and Technical Research Council and Turkish Petroleum Corporation, Assistant Project Director, The Middle East Technical University.

Laboratory Investigation of the Phase Separation Technique as a Potential Secondary Recovery Method, 1970-1971, research assistant, The Middle East Technical University.

### **OTHER RESEARCH ACTIVITIES**

Numerical Modeling of Cavity-Completed, Slanted and Undulating Horizontal Wells.

Parallel Processing Applications in Numerical Reservoir Simulation.

Coupling of Wellbore Flow and Reservoir Flow Equations.

Artificial Neural Network Applications in Petroleum Reservoir Engineering Applications.

Numerical Modeling of Carbon-Dioxide Sequestration in Coal Seams.

Numerical Modeling of Naturally Fractured Gas Condensate Reservoirs.

Development of Artificial Expert Systems with applications in developing In-fill Drilling Strategies.

Artificial Neural Networks for Unconventional Reservoirs

Compositional Modeling

Coalbed Methane Reservoir Engineering

Unconventional Gas and Oil Reservoirs

Advanced Well Architectures

Artificial Gas Lift Design

## **GRADUATE STUDENT ADVISING**

Supervised the preparation of 110 M.S. and 54 Ph.D. theses to their completions.

Currently supervising the thesis research of 2 M.S. and 2 Ph. D students on well test analysis, numerical simulation of conventional and unconventional hydrocarbon reservoirs, and artificial neural network applications.

## **TEACHING RESPONSIBILITIES**

### **GRADUATE LEVEL:**

PNG 501/510 Analytical Solution of Steady-State Fluid Flow Problems in Porous Media (Twelve offerings between 1979 and 1990).

PNG 502 Analytical Solution of Unsteady-State Fluid Flow Problems in Porous Media (One offering in 1986).

PNG 511 Numerical Solution of Partial Differential Equations of Fluid Flow in Porous Media (Thirty-nine offerings between 1979-83, 1984(2), and 1985-2016).

PNG 512 Numerical Reservoir Simulation (Thirty-four offerings between 1979-1984, and 1991-2017).

PNG 519 Design of Thermal Recovery Projects (Four offerings between 1980-1982 and 1986).

PNG 590 Colloquium (One offering in 1984).

PNG 596 Individual Studies (Eleven offerings between 1980-1988, and 2002-03).

PNG 598 Petroleum GeoSystems – team teaching (Four offerings between 2000 and 2004).

### **UNDERGRADUATE LEVEL:**

PNG 420 Applied Reservoir Analysis (Two offerings between 1979-80).

PNG 425 Principles of Well Testing and Evaluation (Thirty-six offerings between 1979-82, and 1984-15).

PNG 430 Reservoir Modeling (Twenty-three offerings between 1979-83, and 1991-09).

PNG 485 Secondary Recovery Engineering (One offering in 2001).

PNG 490 Petroleum Engineering Design I (Eight offerings between 2008 and 2015).

PNG 492 Petroleum Engineering Design III (Nine offerings between 2008 and 2016).

PNG 494 Undergraduate Thesis (Seven offerings).

EM SC 100S First Year Seminar (Thirteen offerings between 2002-2013 and 2016).

### **ON-LINE OFFERINGS:**

PNG 511 Numerical Solution of Unsteady-State Fluid Flow Problems in Porous Media (2005).

PNG 425 Principles of Well Testing and Evaluation (2006).

## **PUBLICATIONS**

### **A. BOOKS:**

Basic Applied Reservoir Simulation. Co-Authors: J. H. Abou-Kassem and G. R. King. Textbook Series, Society of Petroleum Engineers Publications Department, Dallas, Texas, 2001, 406 pages (also published in Chinese and Russian languages).

Reservoir Simulation. Co-Author: M. A. Adewumi. E&P Video Library Modules, IHRDC, Boston, MA, 1995, 166 pages.

Technical Editor Workshop Coursebook, Society of Petroleum Engineers, 125 pages, Dallas, Texas (March 1992).

Gas Well Testing: Theory, Practice and Regulations. Co-author: D. A. T. Donohue, Publisher: IHRDC, Boston, MA, 1982, 212 pages. (Also published as E&P Video Library Module, IHRDC, Boston, MA, 1990, 214 pages.)

### **B. BOOK CHAPTERS:**

Artificial Neural Network Applications in Reservoir Engineering. Co-author: Q. Sun. Edited by Angelo Basile, Marjan Alavi and Stefano Curcio. Chapter 6 in Artificial Neural Networks in Chemical Engineering, pp.123-204, ISBN: 978-1-53611-868-1. Nova Science Publishers, Hauppauge, New York (April 2017).

Structural Properties of Coal Controlling the Coalbed Methane Production. Co-Authors: W. Sung and H. I. Bilgesu. Edited by Douglas C. Peters. Chapter III in EMD Coal Volume on Geology in Coal Resource Utilization, pp. 105-124. American Association of Petroleum Geologists, Tech-Books, Fairfax, Virginia (December 1991).

Underground Storage of Natural Gas: Theory and Practice. Edited by M. R. Tek, NATO Advanced Study Institute Series. Part II, Chapter 2, pp. 76-91. Kluwer Academic Publishers, The Netherlands (September 1989).

Oil and Natural Gas Drilling and Transportation: Environmental Problems and Control. Environmental Consequences of Energy Production. Co-Author: M. A. Adewumi. Edited by Shyamal K. Majumdar, Fred J. Brenner and E. Willard Miller. Chapter 11, pp. 141-163. The Pennsylvania Academy of Science Publications (May 1987).

Principles of Numerical Simulation of Oil Reservoirs-An Overview. Heavy Crude Oil Recovery. Edited by E. Okandan, NATO Advanced Study Institute Series. Chapter 11, pp. 379-408. Martins Nijhoff Publishers, The Hague (April 1984).

### **C. ARTICLES/PAPERS:**

Bansal, Y., T. Ertekin and Z. Karpyn. Mapping Completion Design Trends in a Compartmentalized Tight Oil Reservoir for Rapid Evaluation Using Artificial Neural Networks, SPE 188495, *Proceedings of the SPE 2017 Abu Dhabi International Petroleum Exhibition and Conference, Abu Dhabi, UAE* (November 2017).

Enyioha, C. C. and T. Ertekin. Performance Prediction for Advanced Well Structures in Unconventional Oil and Gas Reservoirs Using Artificial Intelligent Based Expert Systems, SPE 187037, *Proceedings of the SPE 2017 Annual technical Conference, San Antonio, Texas* (October 2017).

- Putch, V.B. and T. Ertekin. A Fast and Robust Compositional, Multi-Phase, Non-isothermal Wellbore Hydraulics Model for Vertical Wells, SPE 187072, *Proceedings of the SPE 2017 Annual technical Conference, San Antonio, Texas* (October 2017).
- Al-Qahtani, M. H. and T. Ertekin. Shale Gas Reservoir Development Strategies Using Complex Specified Bottom-hole Pressure Well Architectures, *Saudi Aramco Journal of Technology*, pp. 19 (Fall 2017).
- Seales, M. B., T. Ertekin, Recovery Efficiency in Hydraulically Fractured Shale Gas Reservoirs. *Journal of Energy Resources Technology*, Vol.139, pp 042901-1 – 042901-8 (July 2017).
- Sun, Q., T. Ertekin. Structuring an Artificial Intelligence Based Decision Making Tool for Cyclic Steam Stimulation Process. *Journal of Petroleum Science and Engineering*, v.154, pp. 564-575 (June 2017).
- Bukhamseen, N., T. Ertekin. The use of Artificial Neural Networks to Quantify the Effect of Formation Damage on Well Production Response. *Proc. Of the SPE Kingdom of Saudi Aabia Annual Technical Symposium and Exhibition, Dammam, Saudi Arabia* (24-27 April, 2017).
- BuKhamseen, N.Y., T. Ertekin. Validating Hydraulic Fracturing properties in Reservoir Simulation using Artificial Neural networks. *Proc. Of the SPE Kingdom of Saudi Aabia Annual Technical Symposium and Exhibition, Dammam, Saudi Arabia* , 32 pages (24-27 April, 2017).
- Alqahtani, M., T. Ertekin. Shale Gas Reservoir Development Strategies using Using Complex Specified Bottom-hole Pressure Well Structures. *Proc. Of the SPE Kingdom of Saudi Aabia Annual Technical Symposium and Exhibition, Dammam, Saudi Arabia* (24-27 April, 2017).
- Kulga, B., E. Artun, T. Ertekin. Development of a Data-driven Forecasting Tool for Hydraulically Fractures, Horizontal Wells in Tight Gas Sands. *Computers and Geosciences*, 103 (2017) 99- 110  
<http://dx.doi.org/10.1016/j.cageo.2017.03.009> (March 2017).
- Siripatrachai, N., T. Ertekin, R. T. Johns. Compositional Simulation of Hydraulically Fractured Tight Formation Considering the Effect of Capillary Pressure on Phase Behavior. *SPEJ* (January 2017).
- Blunshi, J., J. Wang, T. Ertekin. Hydraulic Fracturing Mechanisms in Coal: A Review. *Int. J. Oil, Gas and Coal Technology*. Vol. 14, No 3, (January 2017).
- Sun, Q., T. Ertekin. Structuring an Artificial Intelligence Based Decision Making Tool for Cyclic Steam Stimulation Process. *Journal of Petroleum Science and Engineering*, <http://dx.doi.org/10.1016/j.petrol.2016.10.042> , (October 2016).
- Altaheini, S., A. Al-Towjiri, T. Ertekin. Introducing a New Capacitance-Resistance Model and Solutions to Current Modeling Limitations. *Proc. of the SPE Annual Technical Conference and Exhibition, Dubai, United Arab Emirates* (September 26-28, 2016)
- Seales, M. B., R. Dilmore, T. Ertekin, J.Y. Wang. A Numerical Study of Factors Affecting Fracture-Fluid Cleanup and Produced Gas/Water in Marcellus Shale: Part II. *SPEJ* (September 2016)
- Bansal, Y. and T. Ertekin. Development of an Artificial Neural Network Based Model for Mimicking Combustion Tube Experiments for Heavy Oil Recovery. *International Journal of Petroleum Technology*. E-ISBN: 2409-787X/16, 10 pages (August 2016).
- Ozdemir, I., Q. Sun. and T. Ertekin. Structuring an Integrated Reservoir Characterization and Field Development Protocol Utilizing Artificial Intelligence. *Proc. of the 26th ITU Petroleum and Natural Gas Symposium and Exhibition, Istanbul, Turkey* (June 2016).

Nojabei, B., N. Siripatrachai, R. T. Johns and T. Ertekin. Effect of Large Gas-oil Capillary Pressure on Production: A Compositionally-Extended Black Oil Formulation. *Journal of Petroleum Science and Engineering* DOI: 10.1016/petrol.2016.05.048 (May 2016).

Seales, M., R. Dilmore, T. Ertekin and J. Y. Wang. Development of a Halite Dissolution Numerical Model for Hydraulically Fractured Shale formations (Part 1). *Journal of Unconventional Oil and Gas Resources*. (May 2016).

Siripatrachai, N., T. Ertekin, and R. Johns. Compositional Simulation of Discrete Fractures Incorporating the Effect of Capillary Pressure on Phase Behavior. *Proceedings of SPE Improved Oil Recovery Conference*, Tulsa, Oklahoma, (April 11-13, 2016).

Seales, Maxian B., J. M. De Silva, T. Ertekin, J. Y. Wang. An Investigation into the Occurrence of Hydrate-Bearing Sediments Offshore the East Coast of Trinidad and Tobago. *SPE Journal*, (April 2016).

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Seales, Maxian B., R. Dilmore, T. Ertekin and J. Y. Wang. Numerical Analysis of the Source of Excessive Na<sup>+</sup> and Cl<sup>-</sup> Species in Flowback Water from Hydraulically Fractured Shale Formations. DOI:<http://dx.doi.org/10.2118/180911-PA>, *SPE Journal*, (March 2016).

Alrumah, M., T. Ertekin. Estimating Distance to Water Front for Edge Water using Derivative of Pressure Transient Data. *Int. J. of Oil Gas and Coal Technology*, Vol.11, No.1 (January 2016).

Kim, J., Y. Jang, T. Ertekin, and W. M. Sung. Production Analysis of a Shale gas Reservoir Using Modified Deconvolution Method in the Presence of Sorption Phenomena. *Proc. of the SPE Eastern Regional Meeting*, Morgantown, West Virginia (October 13-15, 2015).

Jang, Y., J. Kim, T. Ertekin and W. M. Sung. Modeling Multi-Stage Twisted hydraulic Fracture propagation in Shale Reservoirs Considering Geomechanical Factors. *Proc. of the SPE Eastern Regional Meeting*, Morgantown, West Virginia (October 13-15, 2015).

Ketineni, S. P., T. Ertekin, K. Anbarci, T. Sneed. Structuring an Integrative Approach for Field Development Planning Using Artificial Intelligence and its Application to an Offshore Oilfield. *Proc. of the SPE Annual Technical Conference and Exhibition*, Houston, Texas (September 28-30, 2015)

Jahromi. M. Z., J. Y. Wang, T. Ertekin. A Two-Dimensional Fully Coupled Numerical Simulator for Modeling Hydraulic Fracture Propagation and Long-Term recovery in Tight Gas Reservoirs-Part 2- Application and Case Study. *Int. J. Petroleum Engineering*. Vol.1, No. 3, pp.146-163 (2015).

Jahromi. M. Z., J. Y. Wang, T. Ertekin. A Two-Dimensional Fully Coupled Numerical Simulator for Modeling Hydraulic Fracture Propagation and Long-Term recovery in Tight Gas Reservoirs-Part 1- Development and Validation. *Int. J. Petroleum Engineering*. Vol.1, No. 3, pp.125-145 (2015).

Sengel, A. and T. Ertekin. Performance Prediction of SAGD process via Artificial Expert Systems. *Proc. of the 20th International Petroleum and Gas Conference (IPETGAS 2015)*. Ankara, Turkey, (May 27-29, 2015).

Rajput, V., E. D. K. Basel and T. Ertekin. Production Prediction and Field Development Design Tool for Coalbed Methane Reservoirs; A Neuro-Simulation Approach. *Proc. of the 37th Int. Symposium on Application of Computers and Operations Research in the Mineral Industry (APCOM 2015)*. Fairbanks, Alaska, (May 23-37, 2015).

Sun, Q. and T. Ertekin. The Development of Artificial Neural Network Based Universal Proxies to Study Steam Assisted Gravity Drainage (SAGD) and Cyclic Steam Injection Processes. *Proc. of the SPE Western Regional Meeting*, Garden Grove, California (April 27-30, 2015).

Alexis, D. A., Z. T. Karpyn, T. Ertekin and D. Crandall. Fracture permeability and relative Permeability of Coal and their Dependence on Stress Conditions. *J of Unconventional Oil and Gas Resources*, doi:10.1016/j.juogr.2015.02.001 (February 2015).

Thararoop, P. Z. T. Karpyn, T. Ertekin. Development of a Material Balance Equation for Coalbed Methane Reservoirs Accounting for the Presence of Water in the Coal Matrix and Coal Shrinkage and Swelling. *J. of Unconventional Oil and Gas Resources*, 9(2015) 153-162 (February 2015).

Thararoop, P. Z. T. Karpyn, T. Ertekin. A Production Type-Curve Solution for Coalbed Methane Reservoirs. *J. of Unconventional Oil and Gas Resources*, 9(2015) 136-152 (February 2015).

Enab, K. and T. Ertekin. Artificial Neural Network based Design for Dual Lateral Well Applications. *J. of Petroleum Science and Technology*, v.123, pp.84-95 (November 2014).

Siripatrachai, N., S. Rana, K. Bodipat, and T. Ertekin. Use of Type Curves and ANNs for Evaluating Multistage Hydraulic Fractured Horizontal Wells in Composite Dual-porosity Shale Gas Reservoirs, *Proc. of the SPE Annual Technical Conference and Exhibition*, Amsterdam, the Netherlands (October 27-29, 2014).

AlMousa, T. and T. Ertekin Development & Utilization of Integrated Artificial Expert Systems for Designing Multi-Lateral Well Configurations, Estimating Reservoir Properties & Forecasting Reservoir Performance, *Proc. of the SPE Middle East Intelligent Energy Conference and Exhibition*, Dubai, UAE, 28–30 (October 2014).

Nojabaei, B., N. Siripatrachai, R.T. Johns and T. Ertekin Effect of Saturation Dependent Capillary Pressure on Production in Tight Rocks and Shales: A Compositionally-Extended Black Oil Formulation, *Proc. of the SPE Eastern Regional Meeting*, Charleston, West Virginia (October 21-23, 2014).

Rajput, V. and T. Ertekin. A Hybrid –Well Block Model with Elliptical Elements. *Proc. of the 24th ITU Petroleum and Natural Gas Symposium and Exhibition*, Istanbul, Turkey (June 2014).

Rajput, V., E. D. K. Basel and T. Ertekin. A Production Performance Prediction and field Development Tool for Coalbed Methane reservoirs: A Proxy Modeling Approach. SPE 169588, *Proc. of the SPE Western North American and Rocky Mountain Joint Regional Meeting*, Denver, Colorado, (April 16-18, 2014).

Rajput, V. and T. Ertekin. Thermodynamically-Consistent Modeling of Adsorption in Liquid-Rich Shales. SPE 169589, *Proc. of the SPE Western North American and Rocky Mountain Joint Regional Meeting*, Denver, Colorado, (April 16-18, 2014).

Enyioha, C. and T. Ertekin. Advanced Well Structures: An Artificial Intelligence Approach to Field Deployment and Performance Prediction. SPE 167870., *Proc. of the Intelligent Energy Conference and Exhibition*, Utrecht, the Netherlands, (April 1-3, 2014).

Sun, Q. and T. Ertekin. Injection Pattern Design Considerations to Maximize the Efficiency of Carbon Dioxide Injection for Sequestration Purposes in Brine Formations, *Proc. of AAPG Annual Convention and Exhibition*, Pittsburgh, Pennsylvania (November 2013)

Alexis, D.A., Z. T. Karpyn, T. Ertekin, D. Crandall. Experimental Investigation of Multiphase Fluid Transport Characteristics in Coal Fractures. *Proc. of the International Conference on Coal Science and Technology*, University Park, Pennsylvania (September 30-October 3, 2013).

Rajput, V. H., T. Ertekin. Development of an Expert System for Production Performance prediction of Coalbed Methane Reservoirs. *Proc. of the International Conference on Coal Science and Technology*, University Park, Pennsylvania (September 30-October 3, 2013).

Jahromi, M. Z., J. Y. Wang and T. Ertekin, Development of a Three-Dimensional, Three-Phase Fully Coupled Numerical Simulator for Modeling Hydraulic Fracture Propagation in Tight Gas Reservoirs. *Proc. of the SPE Hydraulic Fracturing Technology Conference*, Woodlands, Texas (February 4-6, 2013).

Bukhari, A., A. Shcherbakova, T. Ertekin. Dynamic Optimization of capacity Management under the Uncertainty of Reservoir properties and Market Volatility. *Proc. of the SPE Eastern Regional Meeting*, SPE 13ERM-P-234, Pittsburgh, Pennsylvania (August 2013).



- Alexis, D.A., Z. T. Karpyn, T. Ertekin, D. Crandall. Effects of Net stress on Two-Phase Flow in Coal Fractures. *Proc. of the SPE/AAPG/SEG Unconventional Resources Technology Conference-URTeC 161922*, Denver, Colorado (August 2013).
- Bansal, Y., T. Ertekin, Z. Karpyn, L. Ayala, A. Nejad, S. Suleen, O. Balogun, D. Liebmann, Q. Sun. Forecasting Well Performance in a Discontinuous Tight Oil Reservoir Using Artificial Neural Networks. *Proc. of the SPE Unconventional Resources Conference-USA*, SPE 164542, the Woodlands, Texas (April 2013).
- Osholake, T., Jr., J. Y. Wang, T. Ertekin. Factors Affecting Hydraulically Fractured Well Performance in the Marcellus Shale Gas Reservoirs. *J. Energy Resources Technology*, v.135 (March 2013).
- Ertekin, T. Use of Artificial Intelligence Technology in Integrated Reservoir Engineering Applications. *Exploration and Production: Oil and Gas Review*, Volume 10, Issue 2: 18-26 (December 2012).
- Ketineni, S. and T. Ertekin. Analysis of Production Decline Characteristics of a Multi-Stage Hydraulically Fractured Well in a Naturally Fractured Reservoir. *Proc. of the SPE Eastern Regional Meeting*, Lexington, Kentucky (October 2012).
- Thararoop, P., Z. Karpyn and T. Ertekin. Development of a Multi-Mechanistic, Dual-Porosity, Dual-Permeability, Numerical Flow Model for Coalbed Methane Reservoirs, *Journal of Natural Gas Science and Engineering*, pp.121-131 8 (2012),
- Sun, Q. and T. Ertekin. Design of Multiple brine producer/Injector Configurations to Increase Carbon Dioxide Injectivity in Saline Formations. *Proc. of 2012 AIChE Annual Meeting*, Pittsburgh, Pennsylvania (April 2012).
- Siripatrachai, N. and T. Ertekin. Establishing a performance Based Equivalency between Stimulated Reservoir Volume and Discrete Hydraulic Fracture Representations in Numerical Simulation Models. *Proc. of the 22nd ITU Petroleum and Natural Gas Symposium and Exhibition*, Istanbul, Turkey (June 2012).
- Rana, S. and T. Ertekin. Type Curves for Pressure Transient Analysis of Composite Double-Porosity Gas Reservoirs. *Proc. SPE Western North American Regional Meeting*, SPE 153889, Bakersfield, CA (March 2012).
- Siripatrachai, N. and T. Ertekin. Alternate Representations in Numerical Modeling of Multistage Hydraulically Fractured Horizontal Wells in Shale Gas Reservoirs. *Proc. of the SPE Western North American Regional Meeting*, SPE 153813, Bakersfield, California (March 2012).
- Parada, C. and T. Ertekin. A New Screening Tool for Improved Oil Recovery methods Using Artificial Neural Networks. *Proc. of the SPE Western North American Regional Meeting*, SPE 153321, Bakersfield, California (March 2012).
- Clarkson, C.R., M. Nobakht, D. Kaviani, and T. Ertekin. Production Analysis of Tight-Gas and Shale-Gas Reservoirs Using the Dynamic Slippage Concept. *SPEJ*, pp. 230-242 (March 2012).
- Silpngarmert, S., L. F. Ayala, T. Ertekin. Study of Constant-Pressure Production Characteristics of Class 1 Methane Hydrate Reservoirs. *J. Petroleum Exploration and Production Technology* (January 2012).
- Artun, E., T. Ertekin, R. Watson, B. Miller. Designing Cyclic Pressure Pulsing in Naturally Fractured Reservoirs Using an Inverse-Looking Recurrent Neural Network. *International J. Computers and Geosciences*, 38: 68-79 (January 2012).
- Thararoop, P., Z. T. Karpyn, T. Ertekin. Numerical Studies on the Effects of Water Presence in the Coal Matrix and Coal Shrinkage and Swelling Phenomena on CO<sub>2</sub>-enhanced coalbed methane process. *International J. Oil, Gas and Coal Technology*, 19 pp. V. 5, No.1 (January 2012).

Artun, E., T. Ertekin, R. W. Watson, M. Al-Wadhahi. Development of Universal Proxy Models for Screening and Optimization of Cyclic Pressure Pulsing in Naturally Fractured Reservoirs. *Journal of Natural Gas Science and Engineering*, 3:667-686 (November 2011).

Cirdi, A. P., T. Ertekin, L. F. Ayala, A. H. Dogru. Mathematical Modeling of Geomechanical Behavior of Tarmat during the Depletion of Giant Oil Reservoir-Aquifer Systems. *J. Petroleum Exploration and Production Technology*, 1:71-80 (November 2011).

Artun, E., T. Ertekin, R. W. Watson, M. Al-Wadhahi, and B. Miller. Performance and Economic Evaluation of Cyclic Pressure Pulsing in Naturally Fractured Reservoirs. *Journal of Canadian Petroleum Technology*, pp.: 24-36 (September/October 2011).

Ertekin, T. Educating the Petroleum Engineers for the 21st Century. *Proc. of the 21st ITU Petroleum and Natural Gas Symposium and Exhibition*, Istanbul, Turkey (June 2011).

Clarkson, C. R., Nobakht, M., Kaviani, D. and T. Ertekin. Production Analysis of Tight Gas and Shale Gas Reservoirs Using the Dynamic-Slippage Concept. *Proc. of the 2011 SPE North American Unconventional Gas Conference and Exhibition*, Woodland, Texas (June 2011).

Osholake, T., J. Y. Wang, T. Ertekin. Factors Affecting Hydraulically Fractured Well performances in the Marcellus Shale Gas Reservoirs. *Proc. of the 2011 SPE North American Unconventional Gas Conference and Exhibition*, Woodland, Texas (June 2011).

Artun, E., T. Ertekin, R. Watson, B. Miller. Performance Evaluation of Cyclic Pressure Pulsing in a Depleted, Naturally Fractured Reservoir with Stripper-Well Production. *Journal of Petroleum Science and Technology*, 29:9,953-965 (March 2011).

Gorucu, S. E. and T. Ertekin. Optimization of the Design of Transverse Hydraulic Fractures in Horizontal Wells Placed in Dual-Porosity Tight Gas Reservoirs. SPE 142040, *Proc. of the 2011 SPE Middle East Unconventional Gas Conference and Exhibition*, Muscat, Oman (February 2011).

Ertekin, T., R. Harris, P. J. Dudenas. Capstone Engineering Design Experience: Opportunities to Develop and Implement Skills that Work for Real People Doing Real Jobs. *Proc. of the 2010 SPE Annual Technical Conference and Exhibition*, Florence, Italy (September 2010).

Ertekin, T. There is Life after College: Learning Must Go On, The Way Ahead, *SPE*, Vol.6, issue 3 22-23 (September 2010).

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## **PAPERS PRESENTED AT CONFERENCES AND SYMPOSIA**

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Effect of Interfacial Tension on Two-Phase Relative Permeability Relationships. Presented at the DOE Principal Investigators Meeting, Long Beach, California (January 1980).

Role of Wettability in Tertiary Recovery by Micellar Slugs. Presented at the Annual Review of Enhanced Oil Recovery Research, University Park, Pennsylvania (May 1979).

Numerical Simulation of the Compaction-Subsidence Phenomena in a Reservoir for Two-Phase Non-Isothermal Flow. Presented at the 3rd Int. Conf. on Numerical Methods in Geomechanics, Aachen, W. Germany (April 1979).

Laboratory Investigation of the Improvement in Waterflood Displacement Efficiency by the Addition of Finely Divided Coke Particles to Flood Water. Presented at the European Spring Meeting of SPE, Amsterdam, The Netherlands (May 1974).

A Novel Approach to Increase the Waterflood Displacement Efficiency. Presented at the 1st Turkish Petroleum Congress, Ankara, Turkey (February 1974).

## **INVITED LECTURES AND SEMINARS**

New Generation Reservoir Models for Unconventional Hydrocarbon Reservoirs. Invited keynote lecture at the SPE-Kingdom of Saudi Arabia Annual Technical Conference (Dhahran, Saudi Arabia, April 23 -27, 2017).

Application of Artificial Intelligence in Reservoir Engineering Systems Analysis and Information Management. Invited presentation at the Universidad de los Andes School of Engineering, Bogota, Colombia (March10, 2017).

In the Corridors of Time—forty years in forty minutes. Invited presentation at the Department of Energy and Mineral Engineering Graduate Students Seminar Program. Penn State University, University Park, Pennsylvania (January 2017).

Unlocking the Unconventional Oil and Natural Gas Resources. Invited presentation at the Saudi Aramco's Unconventional Gas Reservoirs, Management and Development Division, Dhahran, Saudi Arabia (December 2016).

Artificial Expert Systems—A Panacea or Hype for Long-standing Reservoir Engineering Issues. Invited presentation at the Saudi Aramco's Expec Advanced Research Center (Expec-Arc), Dhahran, Saudi Arabia (December 2016).

Structuring an Integrated Reservoir Characterization and Field development Protocol Utilizing Artificial Intelligence. Invited presentation at the SPE-KSA Section Monthly Dinner, Al-Khobar, Saudi Arabia (December 2016).

Ethics in Science and Engineering. Invited presentation at the Annual SARI Seminar ,Graduate Colloquium of the Energy and Mineral Engineering, Pennsylvania State University, University Park, Pennsylvania (December 2016).

Integration of Seismic and Well Log Data with Existing Production Data to Locate Sweet Spots in Secondary Stage of the Field Development Activities. Invited presentation at The Abu Dhabi National

Oil Company, Reserves and Portfolio management Department Development Unit, Abu Dhabi, United Arab Emirates (September 2016).

Synthesizing Seismic and Well Log Data to Generate Field Productivity Maps for Identifying Infill Well Locations in Semi-Mature Fields. Invited Presentation at the Kuwait Oil Company, Research and Technology Group Subsurface Department, Ahmadi, Kuwait (September 2016).

Structuring an Integrated Reservoir Characterization and Field Development Protocol Utilizing Artificial Intelligence. Invited presentation at the 26th ITU Petroleum and Natural Gas Symposium and Exhibition, Istanbul, Turkey (June 2016).

Professional Responsibility and Ethics. Invited Presentation at the Energy and Mineral Engineering Graduate Colloquium, Penn State University, University Park, Pennsylvania (April 30, 2016).

Revisiting Reservoir Engineering for Coalbed Methane Reservoirs—a reflective analysis. Invited Presentation at the 2016 J. L. “Corky” Frank’58 Graduate Seminar Series in Petroleum Engineering, Harold Vance Department of Petroleum Engineering, Texas A&M University, College Station, Texas (April 12, 2016).

Invited Presentation at the SPE Turkey Section. “Artificial expert Systems: A Panacea or Hype for Long-Standing Reservoir Engineering Problems. PART II - Case Studies for Infill Drilling Applications.” Ankara, Turkey (December 25, 2015)

Invited presentation at the SPE Turkey Section. “Artificial expert Systems: A Panacea or Hype for Long-Standing Reservoir Engineering Problems. PART I - An Overview of Artificial Intelligence Technology.” Ankara, Turkey (December 25, 2015)

Invited presentation at the University-Professional Society-Industry Workshop on Petroleum Engineering Education in the 21st Century (Üniversite-PMO-Sanayi Çalıştayı). “2020’li Yılların Petrol Mühendislerinden Beklenenler” (in Turkish), Ankara, Turkey (December 24, 2015).

Plenary Lecture at the Energy and Mineral Resources Development Symposium 2015. “Unlocking the Unconventional Reservoir Systems.” Seoul, S. Korea (December 4, 2015).

Invited Lecture at the Hanyang University Graduate Colloquium in the Energy and Mineral Resources Department. “Artificial Expert Systems: A Panacea or Hype for Long-Standing Reservoir Engineering Problems.” Seoul, S. Korea, (December 3, 2015).

Invited Lecture at the Hanyang University Undergraduate Colloquium in the Energy and Mineral Resources Department. “Educating the Petroleum Engineers of 2020.” Seoul, S. Korea, (December 2, 2015).

Invited Panel Member at the College of Earth and Mineral Sciences on Discussing “Boom” at the Total Orientation to Earth and Mineral Sciences (TOTEMS Freshmen) meeting, Raystown Lake, Pennsylvania (August 20, 2015).

Questions on Pore Scale Physics of Flow in Porous Media. Invited presentation at the Multi-Society Summit on Unconventional Plays—Reservoir Meets Reserves. Summit meeting sponsored by SPE SEG, AAPG, SPEE and World Production Council, the Woodlands, Texas (August 17-18, 2015).

Use of Artificial Intelligence Technology in Integrated Reservoir and Production Engineering Applications, Invited presentation at the 8th Annual QRI Scholars and Associates Meeting, Houston, Texas (March 27-28, 2015).

Artificial Neural Network Based Toolbox for Unconventional Reservoirs, Invited Presentation for the QRI Research and Development Group, Houston, Texas (March 27, 2015).

Numerical Modeling of Unconventional Reservoir Systems. Invited SPE Web Events Webinar Presentation (February 11, 2015).

Professional Responsibility and Ethics. Invited presentation at the Graduate Colloquium Series of the Department of Energy and Mineral Engineering, Pennsylvania State University, University Park, Pennsylvania (December 2014).

Oil Prices: How low it will go? Invited panelist at the panel discussion organized by the Middle East and North Africa Business Society, Pennsylvania State University, University Park, Pennsylvania (December 2014).

Virtual Intelligence—Can it be a plausible tool to meet the unfulfilled promises of reservoir engineering analysis methods? Invited presentation at the Graduate Colloquium Series of the Department of Energy and Mineral Engineering, Pennsylvania State University, University Park, Pennsylvania (October 2014).

Redesigning Reservoir Engineering for Coalbed Methane Reservoirs: A Reflective Analysis. Invited Presentation at the Fall 2014 Energy Exchange Seminar Series on Energy Science and Technology organized by the Energy Institute, Pennsylvania State University, University Park, Pennsylvania (January 2014).

Numerical Modeling Aspects of Liquid-Rich Fractured Tight Gas Reservoir Systems. Invited Presentation at the SPE 2013 Unconventional Resources Conference—Hot Topics Panel Discussion, The Woodlands, Texas (April 2013).

Petroleum and Natural Gas Engineering in the Corridors of Time. Invited Presentation at the Development Committee Meeting of the College of Earth and Mineral Sciences, Houston, Texas (March 2013).

Coalbed Methane Research at Penn State: The Tale of Two Endowed Chairs (co-presenter Larry Grayson). Invited Presentation at the EMS Alumni Event, Houston, Texas (March 2013).

Production Characteristics of Multilateral and Multistage Hydraulically Fractured Wells of Shale gas Formations. Invited Presentation at the International Shale Gas Conference, Ankara, Turkey (February 2013).

Development and Utilization of an Artificial Expert System for Structuring an Infill Drilling Program for a Gigantic Gas Reservoir. Invited Presentation at the Quantum Reservoir Impact and Pemex Exploration and Production Workshop on Development and Optimization Strategies Workshop, Villahermosa, Mexico (November 2012).

Basic, Applied and Innovative Research Programs in Universities. Invited presentation at the Graduate Colloquium Series of the Department of Energy and Mineral Engineering, Pennsylvania State University, University Park, Pennsylvania (September 2012).

CO<sub>2</sub> Sequestration in Unconventional Gas Reservoirs; Challenges and Opportunities. Invited presentation at the CO<sub>2</sub> Capture and Storage Regional Awareness Raising Workshop, Ankara, Turkey (June 2012).

Natural Gas Extraction and Its Future. Invited presentation at the New York PowerCon, New York, New York (May 2012).

Recent Unconventional Oil and Natural Gas Research Efforts at Penn State University. Invited presentation at the BP-North America Gas Flagship, Westlake, Houston, Texas (April 2012).

Specialized Gas Reservoir Models. Invited presentation at the “Lunch and Learn Series” sponsored by the Chevron Exploration and Production Company, Houston, Texas (November 2011).

Unconventional Models for Unconventional Gas Reservoirs. Invited presentation at the Graduate Seminar Series of the Petroleum Engineering Department, Texas A&M University, College Station Texas (Nov. 2011).

Importance of Innovative Research Programs in Universities. Invited presentation at the Graduate Colloquium Series of the Department of Energy and Mineral Engineering, Pennsylvania State University, University Park, Pennsylvania (November 2011).

Assisted History Matching—who is helping who? Invited presentation at the panel discussion SPE History Matching Workshop: Field Experiences and Lessons Learned, Cartagena, Colombia (August 2011).

Numerical Simulation of Unconventional Gas Reservoirs. Invited presentation at the International External Examiners Seminar Series, Universiti Teknologi Petronas, Bandar Seri Iskandar-Tronoh, Malaysia (July 2011).

Educating the Petroleum Engineers of the 21st Century. Invited presentation at Examiners Meeting at the Faculty of Petroleum and Geosciences, petroleum Engineering Department, Universiti Teknologi Petronas, Bandar Seri Iskandar-Tronoh, Malaysia (July 2011).

Artificial Expert System Applications in Reservoir Engineering. Invited Presentation at the 2011 Hanyang University Petroleum Engineering Laboratory Workshop, Jeju Island, S. Korea (June 2011).

Development of Coalbed Methane Reservoir Engineering—A Penn State Story. Invited Presentation at the 2011 Hanyang University Petroleum Engineering Laboratory Workshop, Jeju Island, S. Korea (June 2011).

The New Global Energy Landscape: Challenges and Opportunities for the Petroleum Industry. Presentation made to the visiting field camp students from CSM, University Park, Pennsylvania, (May 2011).

Can Artificial Neural Networks be a Powerful tool for Unfulfilled Promises of Reservoir Engineering Analysis Methods? Invited presentation at the Chevron Permian Basin Field Operations Office, Midland, Texas (December 2010).

Solving Reservoir Engineering Problems of Complex Architectures Using Artificial Neural Networks Invited presentation at the Petrobras Research Center (CENPES), Rio de Janeiro, Brazil (November 2010).

Use of Soft Computing Methodologies in Reservoir Engineering Applications—Penn State Experience. Invited presentation at the Petrobras Research Center (CENPES), Rio de Janeiro, Brazil (November 2010).

An Overview of Soft Computing Methodologies. Invited presentation at the Petrobras Research Center (CENPES), Rio de Janeiro, Brazil (November 2010).

Innovation and Balancing the Research Needs: Applied Research versus Basic Research. Invited presentation at the Graduate Colloquium Series of the Department of Energy and Mineral Engineering, Pennsylvania State University, University Park, Pennsylvania (October 2010).

What Defines the University Research Programs: Applied Research versus Basic Research? Invited presentation at the 2010 Society of Petroleum Engineers Colloquium on Petroleum Engineering Education, Marina Del Rey, California (August 2010).

A Simple Model for Field Development Studies in Complex Reservoir Systems: A Virtual Intelligence Application. Invited presentation at the Lunch and Learn Series of the Hess Oil and Gas Company, Kuala Lumpur, Malaysia (June 2010).

Artificial Expert Systems for Screening and Designing Enhanced Oil Recovery Applications. Plenary lecture given at the 1st International Conference on Integrated Petroleum Engineering and Geosciences (ICIPEG2010), World Engineering, Science and Technology Congress (ESTCON2010), Kuala Lumpur, Malaysia (June 2010).

Artificial-Expert Systems for the Development of Unconventional Gas Reservoirs. presented at the invitation of Chevron Energy Technology Company Houston, Texas with simultaneous broadcasts to Midland, Texas, San Ramon, California and Houston, Texas (February 2010).



Advanced Carbon Sequestration Model—Computational Capabilities. Invited presentation at the DOE-National Energy Technology Laboratory, Pittsburgh, Pennsylvania (February 2010).

An Artificial Neural Network Based Tool-Box for Screening and Designing Steam Injection Processes. Invited presentation at the SPE San Joaquin Section Monthly Luncheon Meeting, Bakersfield, CA (December 2009).

Artificial Neural Network based Toolbox for Unconventional Reservoirs, presented at the Chevron-Penn State University Unconventional Resource Characterization Partnership Review Meeting, University Park, Pennsylvania (November 2009).

Professional Responsibility and Ethics. Invited presentation at the Graduate Colloquium Series of the Department of Energy and Mineral Engineering, Pennsylvania State University, University Park, Pennsylvania (October 2009).

Fossil Fuels in the Year 2050. Invited panel member at the panel discussion organized by the Discover Magazine, Shell Oil Company and the Stevens Institute of Technology, Hoboken, New Jersey (October 2009).

Educating the Petroleum Engineers of 2020. Invited presentation at the panel discussion on New Training Methods in the 21st Century, Society of Petroleum Engineers Annual Technical Conference and Exhibition, New Orleans, Louisiana, (October 2009).

Innovation and Dilemma of Balancing the Basic and Applied Research Programs at Universities. Invited presentation at the International External Examiners Seminar Series, Universiti Teknologi Petronas, Bandar Seri Iskandar-Tronoh, Malaysia (August 2009).

Hints for Improved Writing Skills. Invited presentation at the International External Examiners Meeting at the Faculty of Petroleum and Geoscience Department, Universiti Teknologi Petronas, Bandar Seri Iskandar-Tronoh, Malaysia (August 2009).

Effective Presentation Skills. Invited presentation at the International External Examiners Meeting at the Faculty of Petroleum and Geoscience Department, Universiti Teknologi Petronas, Bandar Seri Iskandar-Tronoh, Malaysia (August 2009).

Use of Artificial Intelligence in Reservoir Characterization. Invited Session Chair Theme Setting Presentation at the SPE Forum Series on Artificial Intelligence in the E&P Industry—Exploring Opportunities for Better Decision Making, Colorado Springs, Colorado (June 2009).

Artificial Intelligence Applications in Exploration. Invited Discussion Leader Presentation at the SPE Forum Series on Artificial Intelligence in the E&P Industry—Exploring Opportunities for Better Decision Making, Colorado Springs, Colorado (June 2009).

Virtual Intelligence — A Powerful Tool to meet the Unfulfilled Promises of Reservoir Engineering Analysis Methods? Invited presentation at the Graduate Seminar Series of the Petroleum Engineering Department, Texas A&M University, College Station Texas (April 2009).

Virtual Intelligence — A Powerful Tool to meet the Unfulfilled Promises of Reservoir Engineering Analysis Methods? Invited presentation at the “Lunch and Learn Series” sponsored by the Chevron Unconventional Gas Recovery Group, Houston, Texas (April 2009).

Virtual Intelligence — A Powerful Tool to meet the Unfulfilled Promises of Reservoir Engineering Analysis Methods? Invited presentation at the “Snack and Learn Series” sponsored by the Chevron North America Exploration and Production, Mid-Continent/Alaska Business Unit Applied Reservoir Management Team, Houston, Texas (April 2009).

Virtual Intelligence — Can it be a Potential Tool for Unfulfilled Promises of Reservoir Engineering Analysis Methods? Invited presentation at the Department of Energy and Mineral Engineering Graduate Colloquium Series, the Pennsylvania State University, University Park, Pennsylvania (February 2009).

Are We Running Out of Oil? — Perspectives of a Petroleum Engineer. Invited presentation at the Department of Energy and Mineral Engineering Graduate Colloquium Series, the Pennsylvania State University, University Park, Pennsylvania (October 2008).

The Dilemma of Complex Models with Limited Data and Simple Models for Complex Systems. Invited presentation at the 2008 International External Examiners Seminar, PETRONAS University of Technology, Bandar Seri Iskandar, Tronoh, Malaysia (August 2008).

A Comparative Evaluation of Petroleum Engineering Curricula Offered by University of TeknologiPetronas and Western Schools. Invited presentation at the Geoscience and Petroleum Engineering Department of the PETRONAS University of Technology, Bandar Seri Iskandar- Tronoh, Malaysia (August 2008).

The Future of Petroleum Engineering Profession. Invited presentation at the Geoscience and Petroleum Engineering Department of the PETRONAS University of Technology, Bandar Seri Iskandar-Tronoh, Malaysia (August 2008).

Development of an Artificial Neural Network as a Pressure Transient Analysis Tool for Multilayer Reservoirs with or without Crossflow. Invited presentation at the 18th ITU Petroleum and Natural Gas Seminar Series, Istanbul, Turkey (June 2008).

Use of Artificial Expert Systems in Field Development. Invited presentation at the Saudi Aramco Northern Area Reservoir Management Department, Dhahran, Saudi Arabia (May 2008).

An Overview of Artificial Expert System Applications in Reservoir Engineering. Invited presentation at the King Fahd University of Petroleum and Minerals, Center for Petroleum and Minerals Research Institute Dhahran, Saudi Arabia (May 2008).

Can Artificial Expert Systems make the Life Easier for Asset Teams in their Efforts towards Engineering of the Hydrocarbon Reservoirs? Invited presentation at the King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia (May 2008).

Are we running out of oil? – a petroleum engineer’s perspective. Presented at the Energy and Mineral Engineering Department Energy Policy Speaker Series under the topic of Engineers and Economists: Can we all be friends? Penn State University, University Park, (April 2008).

Complex Models with Limited Data versus Simple Models for a Complex System: What can be Realistically Expected from Simulator/Flow Models in Early Development Stages? Invited presentation at a panel discussion Presented at the SPE Unconventional Reservoirs Conference, Keystone, CO (February 2008).

Can Artificial Expert Systems Help the Reservoir Asset Teams in their Reservoir Modeling Efforts? Invited discussion presented at the SPE Forum Series on “Reservoir Modeling for Asset Teams,” Puerto Vallarta, Mexico (October 2007).

How did the Goal-Keeper Save the Uncatchable Shot? Overview of Artificial Neural Network Applications in Reservoir Engineering. Invited presentation at the Petroleum & Natural Gas Engineering/EGEE Graduate Colloquium. The Pennsylvania State University, University Park, PA (October 2007).

Outcome Based Assessment Methods. Invited presentation, 2007 Expert Panel Workshop on Undergraduate Education organized by the PETRONAS U.of Technology, Kuala Lumpur, Malaysia (July 2007).

The New Global Energy Landscape: Challenges and Opportunities for the Petroleum Industry. Invited presentation at the 2007 External Examiners Meeting, PETRONAS University of Technology, Bandar Seri Iskandar, Tronoh, Malaysia (June 2007).

Innovation and Balancing the Research Needs at the Universities: Fundamental Research versus Applied Research. Invited presentation at the Geoscience and Petroleum Engineering Department of the PETRONAS University of Technology, Bandar Seri Iskandar-Tronoh, Malaysia (June 2007).

Use of Virtual Intelligence Methods in Field Development Applications. Invited presentation at the Geoscience and Petroleum Engineering Department of the PETRONAS University of Technology, Bandar Seri Iskandar-Tronoh, Malaysia (June 2007).

Integration of Seismic Attributes and Production Data in Field Development and Planning. Invited presentation at the 17th ITU Petroleum and Natural Gas Seminar Series, Istanbul, Turkey (June 2007).

Integration of Geophysical Attributes and Production Data towards the Determination of Infill Well Locations. Invited presentation at the Technology Services Department, Marathon Oil Company, Houston, Texas (May 2007).

Virtual Intelligence Applications in Reservoir Engineering Analysis. Invited presentation at the Technology Services Department, Marathon Oil Company, Houston, Texas (May 2007).

What needs to be done to promote a Wider Scale Exploitation of CBM and Potential Linkage with CO<sub>2</sub> and Flue Gas Storage? Invited presentation at the SPE Forum Series on 'Stranded Gas: The Next Challenge', Phuket, Thailand (May 2007).

Is Coalbed Methane Technology as Mature as Some May Claim? Invited presentation at the SPE Forum Series on Stranded Gas: The Next Challenge, Phuket, Thailand (May 2007).

Artificial Intelligence Methods in Reservoir Management. Invited presentation at the SPE Advanced Technology Workshop on Analysis of Reservoir Performance – Future View, Session IV: Use of Reservoir Performance Analysis in Reservoir Management, Key West, Florida (February 2007).

The Development and Field testing of a Compositional Numerical Model Applicable to Carbon Dioxide Sequestration in Coal Seams. Invited presentation at the Symposium on CO<sub>2</sub> Capture and Storage in Underground Geological Formations. Organized by the Chamber of Petroleum Engineers, Ankara, Turkey (December 2006).

The Wamsutter Field – 19N 94W Township Development Study using Artificial Neural Networks, BP Houston Reservoir Engineering Group, Houston, Texas (August 2006).

Innovation and Balancing the Research Needs at the Universities: Fundamental Research versus Applied Research. Invited presentation at the 16th ITU Petroleum and Natural Gas Seminar and Exhibition. Organized by the Istanbul Technical University, Istanbul, Turkey (June 2006).

Use of Artificial Neural Networks in Reservoir Engineering: Part II – Applications. Invited lecture presented at the International Summer School of Geothermal Exploration, Prospecting and Reservoir Engineering Monitoring. Dokuz Eylul University Geothermal Energy Research and Application Center, Seferihisar-Izmir, Turkey (June 2006).

Use of Artificial Neural Networks in Reservoir Engineering: Part I – Theory. Invited lecture presented at the International Summer School of Geothermal Exploration, Prospecting and Reservoir Engineering Monitoring. Dokuz Eylul University Geothermal Energy Research and Application Center, Izmir, Turkey (June 2006).

Yenilikçilik ve Temel ve Uygulamalı Araştırmalar İkilemi. Invited presentation at the Strategies on Science And Technology Workshop (in Turkish). Organized by the Gazi University, Golbasi-Ankara, Turkey (June 2006).

Numerical Modeling of Carbon Dioxide Sequestration in Coal Seams. Invited presentation at the TASSA-TUBITAK Spring Workshop, Organized by the Turkish Scientific Research Council and Turkish American Association for Scientists and Scholars, Gebze, Turkey (May 2006).

My Experiences as an ABET Program Evaluator. Invited presentation at the ABET Retreat organized by the College of Engineering and College of Earth and Mineral Sciences, Penn State University, University Park, Pennsylvania (April 2006).

Reservoir Characterization and Simulation: The Dilemma of Living with More Unknowns than the Number of Equations. Keynote Lecture presented at the Second Kuwait International Petroleum Conference and Exhibition, Kuwait City, Kuwait (December 2005).

Virtual Applications in Reservoir Engineering Analyses. Invited presentation, BP Houston Reservoir Engineering Department, Houston, Texas (November 2005).

Virtual Applications in Reservoir Engineering Analyses. Invited presentation, Lunch & Learn Series, Chevron Energy and Technology Company, Houston, Texas (November 2005).

Innovation and Balancing the Research Needs: Applied Research versus Basic Research. Invited presentation at the Petroleum and Natural Gas Engineering and Department of Energy and Geo-Environmental Engineering Graduate Colloquium Series, The Pennsylvania State University, University Park, Pennsylvania (October 2005).

Petroleum Engineering Discipline & Why Do I Want to Become a Petroleum Engineer? Invited presentation at the Penn State University College of Engineering First Year Seminar Series, University Park, Pennsylvania (September 2005).

Balancing R&D Needs – Fundamental vs Applied Research. Invited presentation at the SPE North America Series on Technology Development – Who Pays and Who Plays? Broomfield, Colorado (June 2005).

Collaborative R&D Models: Culture, Management and Goal Alignment. Invited presentation at the SPE North America Forum Series on Technology Development – Who Pays and Who plays? Broomfield Colorado (June 2005).

The “Whys”, “Hows”, and “Then Whats’ of Special Purpose Gas Reservoir Models. Invited presentation at Petroleum Authority of Thailand, Bangkok, Thailand (May 2005).

How Did the Goal-Keeper Save the Uncatchable Shot? An Overview of Neural Networks. Invited presentation at Petroleum Authority of Thailand, Bangkok, Thailand (May 2005).

Analysis of Flow Mechanisms in Naturally Fractured Gas Condensate Reservoirs. Invited presentation at Petroleum Authority of Thailand, Bangkok, Thailand (May 2005).

Challenges and Opportunities in Exploitation of Gas Hydrate Reservoirs. Invited presentation at Petroleum Authority of Thailand, Bangkok, Thailand (May 2005).

Challenges for Reservoir Modelers in Petroleum Engineering. Invited presentation at Petroleum Authority of Thailand, Bangkok, Thailand (May 2005).

Virtual Intelligence – a panacea or hype for long-standing reservoir engineering issues. Invited presentation at Petroleum Authority of Thailand, Bangkok, Thailand (May 2005).

Virtual Intelligence – a panacea or hype for long-standing reservoir engineering issues. Invited Distinguished Lecturer presentation at the SPE Fort Worth Section, Fort Worth, Texas (March 2005).

Refocusing on Coalbed Methane Reservoir Engineering – A Reflective Analysis. Invited presentation at the Department of Petroleum and Geosystems Engineering Graduate Seminar Series, University of Texas at Austin, Austin, Texas (February 2005).

Virtual Intelligence – a panacea or hype for long-standing reservoir engineering issues. Invited Distinguished Lecturer presentation at the SPE Port Harcourt Section, Port Harcourt, Nigeria (February 2005).

Virtual Intelligence – a panacea or hype for long-standing reservoir engineering issues. Invited Distinguished Lecturer presentation at the SPE Wauri Section, Wauri, Nigeria (February 2005).

Virtual Intelligence – a panacea or hype for long-standing reservoir engineering issues. Invited Distinguished Lecturer presentation at the SPE Benin City Section, Benin City, Nigeria (February 2005).

Virtual Intelligence – a panacea or hype for long-standing reservoir engineering issues. Invited Distinguished Lecturer presentation at the SPE Lagos Section, Lagos, Nigeria (February 2005).

Refocusing on Coalbed Methane Reservoir Engineering – A Reflective Analysis. Invited presentation at the Petroleum & Natural Gas Engineering Graduate Colloquium. The Pennsylvania State University, University Park, PA (January 2005).

Virtual Intelligence – a panacea or hype for long-standing reservoir engineering issues. Invited presentation at the Petroleum & Natural Gas Engineering Graduate Colloquium. The Pennsylvania State University, University Park, PA (January 2005).

Virtual Intelligence – a panacea or hype for long-standing reservoir engineering issues. Invited Distinguished Lecturer presentation at the SPE Washington D. C. Section, Washington, D. C. (January 2005).

Virtual Intelligence – a panacea or hype for long-standing reservoir engineering issues. Invited Distinguished Lecturer presentation at the SPE Bartlesville Section, Bartlesville, Oklahoma (December 2004).

Virtual Intelligence – a panacea or hype for long-standing reservoir engineering issues. Invited Distinguished Lecturer presentation at the SPE Gulf Coast Section, Houston, Texas (December 2004).

Virtual Intelligence – a panacea or hype for long-standing reservoir engineering issues. Invited presentation at the ChevronTexaco Australia Pty. Ltd., Perth, Australia (October 2004).

An Overview of the Petroleum GeoSystems Initiative at Penn State. Invited presentation at the 6th SPE Colloquium on Petroleum Engineering Education, Golden, Colorado (August 2004).

Refocusing on Coalbed Methane Reservoir Engineering – A Reflective Analysis. Invited presentation at the 14th Istanbul Technical University Petroleum and Natural Gas Seminar, Istanbul, Turkey (July 2004).

Virtual Intelligence – a panacea or hype for long-standing reservoir engineering issues. Invited Distinguished Lecturer presentation at the SPE Atlantic Chapter, Halifax, Nova Scotia, Canada (June 2004).

Virtual Intelligence – a panacea or hype for long-standing reservoir engineering issues. Invited presentation at the Society of Petroleum Engineers Distinguished Lecturers Orientation Meeting, Houston, Texas (May 2004).

Oil and Gas Engineering Management – An on-line M.Eng. degree program offered by the Department of Energy and Geo-Environmental Engineering. Invited presentation at the 2004 e-Education Seminar Series of the John A. Dutton e-Education Institute, The Pennsylvania State University, University Park, PA (Feb. 2004).

Refocusing on Coalbed Methane Reservoir Engineering – A Reflective Analysis. Invited presentation at the Graduate Seminar Series of the School of Chemical Engineering, Oklahoma State University, Stillwater, OK (January 2004).

Development of a Carbon Dioxide Sequestration Performance Predictor/Screening Tool Based on ANN Technology. Presented at the DOE University/NETL Partnership Program Annual Review Meeting, Pittsburgh, Pennsylvania (November 2003).

Refocusing on Coalbed Methane Reservoir Engineering – A Reflective Analysis. Invited presentation at the Department of Energy and Geo-Environmental Engineering Graduate Colloquium, The Pennsylvania State University, University Park, PA (November 2003).

The Winds of Change. Invited presentation at the 2003 SPE Annual Technical Conference and Exhibition. Panel Discussion on Metrics and Professional Development, Denver, Colorado (October 2003).

PSU-COALCOMP's Performance in Compositional Coalbed Methane Simulation Comparison Study. Presented at the 3rd Workshop on Numerical Modeling of Enhanced Coalbed Methane Recovery, Tokyo, Japan (September 2003).

Enhanced Recovery of Methane and Carbon Dioxide Sequestration in Coal Seams: A Win-Win Process. Presented at the A. Goktekin Petrol ve Dogal Gaz Semineri, ITU Maden Fakultesi, Istanbul, Turkey (June 2003).

Preparing for ABET 2000. Invited presentation at the Sultan Qaboos Univ., Muscat, Oman (May 2003).

Well Testing and Pressure Transient Analysis Using Artificial Neural Networks. Invited presentation at the SPE Advanced Technology Workshop on Virtual Intelligence, Houston, Texas (February 2003).

Artificial Neural Network Applications in Reservoir Characterization. Keynote address presented at the First Kuwait International Petroleum Conference and Exhibition on Improved Oil Recovery Management, Kuwait City, Kuwait (December, 2002).

Characterization of Coalbed Reservoirs from Pressure Transient Data Using Artificial Neural Networks. Invited presentation at the NETL/Consol Energy Advanced Coalbed Research Topics Meeting, Library-Pittsburgh, PA (July 2002).

Training the Next Generation of Technical Leaders for the Petroleum Industry. Invited presentation at the Commencement Exercises of the Petroleum and Natural Gas Engineering, Istanbul Technical University, Istanbul, Turkey (June 2002).

Neuro-Simulation Applications in Reservoir Engineering. Keynote lecture presented at the First International Symposium on Earth Sciences and Engineering, Istanbul Technical University, Istanbul, Turkey (May 2002).

Neuro-Simulation: Panacea or Hype for Long-Standing Reservoir Engineering Issues. Invited presentation at the Petroleum & Natural Gas Engineering Graduate Colloquium, The Pennsylvania State University, University Park, PA (April 2002).

Neuro-Simulation: Panacea or Hype for Long-Standing Reservoir Engineering Issues. Invited presentation, University of Tulsa Graduate Seminar Series, Tulsa, OK (April 2002).

So, You Are All Set to Become a Professional. Welcome to the World of 4th Generation R&D. Invited presentation at the Graduate Colloquium, The Pennsylvania State University, University Park, PA (December 2001).

Compositional Modeling of Multi-Component Gas Transport in Coal Seams. University/NETL Student Partnership Program 4th Annual Meeting, Pittsburgh, PA (November 2001).

Two-Phase Relative Permeability Predictions Using a Neuro-Simulation Approach. Invited presentation at the Saudi Aramco Laboratories Department, Dhahran, Saudi Arabia (September 2001).

Intricacies of Gas Reservoir Simulation Model Development. Invited presentation at the Saudi Aramco Reservoir Management Group, Dhahran, Saudi Arabia (September 2001).

Advanced Approaches in Coalbed Methane Reservoir Engineering Technology. Keynote presentation at the 17th International Mining Congress and Exhibition of Turkey, Ankara, Turkey (June 2001).

Petroleum Geosystems: An Initiative to Train the Next Generation of Technical Leaders. Invited presentation at the SPE Research and Development Conference, Houston, Texas (June 2001).

Development of State-of-the-Art Artificial Neural Networks for Reservoir Engineering Applications. Invited presentation at the Petrobras Reservoir Engineering Group, Petrobras Headquarters, Rio de Janeiro, Brazil (March 2001).

Recent Developments and Challenges in Petroleum Reservoir Modeling. Invited presentation at the Petrobras Research Center (CENPES), Rio de Janeiro, Brazil (March 2001).

PNGE in the Corridors of Time. Invited presentation at the Department of Energy and Geo-Environmental Engineering Graduate Colloquium, The Pennsylvania State University, University Park, PA (March 2001).

Refocusing on Coalbed Methane Reservoir Engineering – A Reflective Analysis. Invited presentation at the Fuel Science Graduate Colloquium, The Pennsylvania State University, University Park, PA (February 2001).

Reservoir Engineering Simulation Strategies for the Performance Prediction of Conventional and Unconventional Gas Reservoirs. Invited presentation at the Graduate Colloquium, The Pennsylvania State University, University Park, PA (February 2001).

Author-Editor-Reader: Is It the Bermuda Triangle of Scientific Publishing? Invited presentation at the Graduate Colloquium, The Pennsylvania State University, University Park, PA (September 2000).

Effective Speech and Speech Presentation. Invited presentation at the Graduate Colloquium. The Pennsylvania State University, University Park, PA (March 2000).

An Overview of Soft Computing Protocols and their Petroleum Engineering Applications. Invited presentation at the Reservoir Engineering Department of Saudi Aramco, Dhahran, Saudi Arabia (October 1999).

Development of a Universal Relative Permeability Predictor Using Artificial Neural Networks. Invited presentation at the Research and Laboratories Department of Saudi Aramco, Dhahran, Saudi Arabia (October 1999).

Artificial Neural Network Technology and Its Applications in Petroleum Engineering. Invited presentation at the Information and Computer Sciences Department, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia (October 1999).

Professional Responsibility and Ethics. Invited presentation at the Graduate Colloquium (with A. S. Grader). The Pennsylvania State University, University Park, PA (September 1999).

A Compositional Formulation Describing Flow Dynamics in Coalbed Reservoirs. Invited presentation at the Conference on Modern Approaches to Flows in Porous Media. Russian Academy of Sciences, Institute for Problems in Mechanics, Moscow, Russia (September 1999).

Preparation for ABET 2000. Invited presentation at the Mining Engineering Department, The Middle East Technical University, Ankara, Turkey (June 1999).

How Did the Goal-Keeper Save the Uncatchable Shot: An Overview of Artificial Neural Networks and Its Applications in Petroleum Engineering. Invited presentation at the Petroleum and Natural Gas Engineering Department, The Middle East Technical University, Ankara, Turkey (June 1999).

Challenges for Reservoir Modelers in Petroleum Engineering. Invited presentation at the Petroleum and Natural Gas Engineering Department, The Middle East Technical University, Ankara, Turkey (June 1999).

An Introduction to Neural Networks and its Applications in Petroleum Engineering. Invited lecture presented at the SPE 1998 Eastern Regional Meeting, Pittsburgh, Pennsylvania (November 1998).

Neural Networks: Can They Describe the Indescribable? Seminar presented at the Graduate Colloquium. The Pennsylvania State University, University Park, Pennsylvania (September 1998).

Introduction to Neural Networks. Invited lecture presented at the SPE Rocky Mountain Regional/Low Permeability Reservoirs Symposium, Denver, Colorado (April 1998).

Recent Developments in Numerical Modeling of Hydrocarbon Reservoirs. Invited presentation at the SPE Muscat Section, Muscat, Oman (December 1997).

Engineering Education at a Cross-Road: An Integrative Approach. Invited presentation at the Sultan Qaboos University, Muscat, Oman (December 1997).

An Overview of the SPE Review Process. Invited presentation at the Petroleum and Mining Engineering Department, Sultan Qaboos University, Muscat, Oman (December 1997).

Parametric Analysis of the Relative Permeability Models. Invited presentation at the Petroleum and Mining Engineering Department, Sultan Qaboos University, Muscat, Oman (December 1997).

SPE Review Process. Invited presentation at the Petroleum Engineering Department, University of New South Wales, Sydney, Australia (March 1997).

Relative Permeability Characteristics and Relative Permeability Models. Invited presentation at the Australian Petroleum Cooperative Research Center, University of New South Wales, Sydney, Australia (March 1997).

A Comparative Analysis of the Performance of Relative Permeability Models. Invited presentation at BHP Newcastle Research Center, Newcastle, Australia (March 1997).

Revisiting the Reservoir Engineering School for Coalbed Methane Production. Invited presentation at BHP Newcastle Research Center, Newcastle, Australia (March 1997).

Challenges for Reservoir Modelers in Petroleum Engineering. Invited presentation at the BHP Newcastle Research Center, Newcastle, Australia (March 1997).

Challenges for Reservoir Modelers in Petroleum Engineering. Invited presentation at the SPE Melbourne Section, Melbourne, Australia (March 1997).

The Relative Permeability Models: How Dependable They Are. Invited presentation at the Turkish Petroleum Corporation, Ankara, Turkey (December 1996).

Reservoir Engineering Concepts for the Coalbed Reservoir Evaluations. Invited presentation at the Middle East Technical University, Ankara, Turkey (December 1996).

Publishing: From the Eye of a Technical Editor. Seminar presented at the PNGE Graduate Colloquium Series (November 1996).



A New Look at the Reservoir Engineering Principles of Coalbed Methane Reservoirs. Invited presentation at the Turkish Scientific Research Council Marmara Experiment Station, Gebze, Turkey (June 1996).

Relative Permeability Characteristics and Relative Permeability Models: Is Something Lost in Between? Seminar presented at the PNGE Graduate Colloquium Series, (April 1996).

Reservoir Engineering Aspects of the Coalbed Methane Production. Invited presentation at the Meridian Oil Inc., Farmington, New Mexico (November 1994).

An Overview of the Coalbed Methane Production Research at Penn State. Seminar presented at the Graduate Colloquium. The Pennsylvania State University, University Park, Pennsylvania (October 1994).

Revisiting the Reservoir Engineering School for Coalbed Methane Production. Invited presentation at the North American Coalbed Methane Forum Fall Meeting, Morgantown, WV (October 1994).

A Momentum Guide to Understanding the PNGE Theses at Penn State. Seminar presented at the Graduate Colloquium. The Pennsylvania State University, University Park, Pennsylvania (January 1994).

An Overview of the SPE Review Process. Petroleum Engineering Graduate Seminar. West Virginia University, Morgantown, West Virginia (April 1993).

Reservoir Engineering Aspects of Coalbed Methane Recovery. Geosciences Colloquium Series, Penn State University, University Park, Pennsylvania (February 1993).

Reservoir Engineering Framework for Coalbed Methane Production. Lecture presented at the Cooperative Coal Research Information Transfer Session, Penn State, University Park, Pennsylvania (November 1992).

Compositional Simulation of Gas Reservoirs. A discussion problem presented at the SPE Forum Series on Gas Reservoir Engineering, Snowmass Village, Colorado (July 1992).

A Critical Analysis of the Performance of Relative Permeability Models in Computational Environments. A key note lecture presented at the Saudi Aramco 11th Tech. Exchange Meeting, Dhahran, S. Arabia (May 1992).

An Efficient Local Grid Refinement Technique for Reservoir Simulators. Seminar presented at the P.E. Research and Development Group of Saudi Aramco, Dhahran, Saudi Arabia (May 1992).

The Basic Elements of the SPE Editorial Review Process. Seminar presented at the Research Institute of the King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia (May 1992).

So You Are Going to be an SPE Author ... Seminar presented at the Graduate Colloquium, The Pennsylvania State University, University Park, Pennsylvania (April 1992).

Coalbed Methane Reservoirs: New Challenges for Petroleum Engineers. Conference presented at the Invitation of SPE Turkey Section, Ankara, Turkey (June 1991).

Reservoir Engineering Methodologies for Coalbed Methane Production. Seminar presented at the Graduate Colloquium, The Pennsylvania State University, University Park, Pennsylvania (January 1991).

New Strategies for In-Situ Characterization of Coal. Report presented at the U.S. DOE Fossil Energy Project Peer Review Program, Dallas, Texas (December 1990).

Reservoir Framework for Coalbed Methane Production: A Random Walk through Penn State's Research Efforts. Lecture presented at the University of Tulsa Petroleum Engineering Department Graduate Seminar Series, Tulsa, Oklahoma (November 1990).

The Development and Testing of a Static/Dynamic Local Grid Refinement Technique. Seminar presented at the Graduate Colloquium, The Pennsylvania State University, University Park, Pennsylvania (October 1989).

Current Research Interests in Petroleum & Natural Gas Engineering. Seminar presented at the Graduate Colloquium, The Pennsylvania State University, University Park, Pennsylvania (September 1988).

Turkey: A Look at Its Culture, People and Strategic Importance. Lecture presented to the 112 Tactical Command Force of U.S. Air Force, University Park, Pennsylvania (September 1988).

Reservoir Analysis of Blanket Sands Using a Numerical Multimechanistic Model. Report presented at the U.S. DOE Review of Oil Shale, Tar Sands, and Unconventional Gas Research, Kansas City, Missouri (June 1988).

Status Report: Panel Discussion on Reservoir Performance Prediction for Reservoir Management. Report presented at the Eastern Regional Forum. Organized by the Geoscience Institute for Oil and Gas Recovery Research, Pittsburgh, Pennsylvania (June 1988).

Unconventional Storage of Natural Gas: Prospects in Coal Seams. Lecture presented at the NATO Advanced Study Institute on Underground Storage of Natural Gas. Organized by North Atlantic Treaty Organization and the Middle East Technical University, Ankara, Turkey (May 1988).

Dual-Mechanism Gas Flow Dynamics in Single- and Dual-Porosity Systems. Lecture presented at the NATO Advanced Study Institute on Underground Storage of Natural Gas. Organized by North Atlantic Treaty Organization and The Middle East Technical University, Ankara, Turkey (May 1988).

Dynamics of Petroleum Engineering Education at Penn State. Seminar presented at the Graduate Colloquium, The Pennsylvania State University, University Park, Pennsylvania (September 1986).

Numerical Simulation of Coal Seam Degasification Process. Lecture presented at the National Science Foundation CBMS Regional Conference in the Mathematical Sciences, Morgantown, West Virginia (June 1986).

Quo Vadis Petroleum and Natural Gas Engineering? Seminar presented at the Geomechanics Seminar, The Pennsylvania State University, University Park, Pennsylvania (February 1986).

Multi-Mechanistic, Two-Phase Flow of Gas in Tight Porous Media. Seminar presented at Conoco Inc. Production Research and Development Laboratory, Ponca City, Oklahoma (October 1985).

Status Report: Development of Coal Gas Production Mathematical Models for Well Test Strategies. Report presented at the GRI Natural Gas Supply Project Advisors Meeting, Grand Junction, CO (September 1985).

Compaction Drive Mechanisms in Oil Reservoirs and Associated Subsidence. Conference presented at the Middle East Technical University. Organized by the United Nations Development Program and METU, Ankara, Turkey (July 1985).

Flow Mechanisms in Coal Seam Degasification Processes. Conference presented at the Middle East Technical University. Organized by the United Nations Development Program and METU, Ankara, Turkey (July 1985).

Recent Developments in Pressure Transient Analysis: Composite System and Vertically Fractured Well Solutions. Conference presented at the Middle East Technical University. Organized by the United Nations Development Program and METU, Ankara, Turkey (July 1985).

Flow Mechanisms in Unconventional Gas Reservoirs. Lecture presented at the National Conference of Petroleum Independents, Pittsburgh, Pennsylvania (May 1985).

Numerical Modeling of Non-Newtonian Fluid Flow in Vertically Fractured Systems. Seminar presented at the Graduate Colloquium, The Pennsylvania State University, University Park, Pennsylvania (April 1984).

Simulation of Power-Law Fluid Flow Dynamics in Porous Media. Lecture presented at the Computer Technology in the Oil Industry Symposium. Organized by the Texas Tech. Chapter of the Society of Petroleum Engineers, Lubbock, Texas (March 1984).

Role of Interfacial Tension on Two-Phase Relative Permeability Curves. Conference presented at the Middle East Technical University. Organized by the United Nations Development Program and the Middle East Technical University, Ankara, Turkey (January 1984).

On the Flow Dynamics of Gas in Tight Porous Media. Conference presented at the Middle East Technical University. Organized by the United Nations Development Program and the Middle East Technical University, Ankara, Turkey (January 1984).

Principles of Numerical Modeling of Reservoirs. Lecture presented at the NATO Advanced Study Institute on Heavy Oil Recovery as Applied to Carbonate Reservoirs. Organized by North Atlantic Treaty Organization and the Middle East Technical University, Ankara, Turkey (July 1982).

Overview of Non-Thermal Enhanced Oil Recovery Research. Lecture presented at the Colloquium on Methods of Heavy Oil Recovery. Organized by Simon Bolivar University and Venezuela Petroleum Research Institute, Caracas, Venezuela (July 1981).

Pennsylvania State University Research on Micellar Flooding. Lecture presented at the Colloquium on Methods of Heavy Oil Recovery. Organized by Simon Bolivar University and Venezuela Petroleum Research Institute, Caracas, Venezuela (June 1981).

An Overview of Numerical Simulation in Petroleum Engineering. Lecture presented at the Colloquium on Methods of Heavy Oil Recovery. Organized by Simon Bolivar University and Venezuela Petroleum Research Institute, Caracas, Venezuela (June 1981).

Interaction Between Rock Mechanics and Petroleum Engineering. Lecture presented for the Department of Mining Engineering. The Pennsylvania State University, University Park, PA (April 1980).

Numerical Modeling of the Subsidence-Compaction Phenomena Related with Oil Field Production. Lecture presented at the University of Wyoming, Laramie, Wyoming (October 1978).

### **SHORT COURSES AND WORKSHOPS PRESENTED**

“Theoretical and Practical Aspects of Well Test Analysis,” Invited short course presented at the SPE-Kingdom of Saudi Arabia Annual technical Conference (Dhahran, Saudi Arabia, April 23, 2017).

“Engineering of Unconventional Hydrocarbon Reservoirs,” Short course presented to Escuela Superior Politécnica del Litoral, Guayaquil, Ecuador (September 3-5, 2014).

“Integrated Reservoir and Production Analysis,” Short course presented to Formosa Petrochemical Corporation, State College, Pennsylvania (September 9-14, 2013).

“Reservoir Development Planning, Management and Surveillance,” Course presented at the Universidade Eduardo Mondlane (UEM) Petroleum Engineering Program, Maputo, Mozambique (Aug.19-Sept 2, 2013).

“Integrated Reservoir and Production Analysis,” Short course organized by Nautilus Engineering Training Alliance, Brisbane, Australia (July 2013).

“Numerical Simulation of Coalbed Methane Reservoirs,” Workshop presented to China National Offshore Oil Corporation, State College, Pennsylvania (January 14, 2013).

“Integrated Reservoir and Production Analysis,” Short course organized by Nautilus Engineering Training Alliance, Aberdeen, United Kingdom (October 1-5, 2012).

“Integrated Reservoir and Production Analysis,” Short course organized by Nautilus Engineering Training Alliance, London, United Kingdom (October 4-8, 2011).

“Reservoir Management and Monitoring,” Short Course Organized by Power Technology Transfer for Zadcó, Abu Dhabi, United Arab Emirates (April 24-28, 2011).

“Multi-Phase Reservoir Simulation,” Short Course Organized by Petrobras, Rio de Janeiro, Brazil (November 22-26, 2010).

“Integrated Reservoir and Production Analysis,” Short course organized by Nautilus Engineering Training Alliance, London, United Kingdom (October 4-8, 2010).

“Reservoir Management and Monitoring,” Short Course Organized by Power Technology Transfer for Zadcó, Abu Dhabi, United Arab Emirates (May 23-27, 2010).

“Basic Elements of Reservoir Simulation,” Short Course Organized by Petrobras, Rio de Janeiro, Brazil (May 17-21, 2010).

“Aramco Professional On Boarding Program—Field Development Planning,” Short Course Organized by IHRDC for Saudi Aramco, Dhahran, Saudi Arabia (April 3-April 7, 2010).

“Aramco Professional on Boarding Program—Project Review, Exploration, Appraisal and Professionalism in the Workplace,” Short Course Organized by IHRDC for Saudi Aramco, Dhahran, Saudi Arabia (March 27-March 31, 2010).

“Effective Presentation Skills for Petroleum Industry,” Short course organized by Innovative Petrotech Solutions for Japan Metal and Petroleum Company, JOGMAC Tokyo, Japan (January 13-15, 2010).

“Production Operations and Surface Facilities,” Short Course organized by Power Technology Transfer for Zadcó, Abu Dhabi, United Arab Emirates (December 13-17, 2009).

“Unconventional Gas Reservoirs,” Short course organized by Nautilus Engineering Training Alliance, Houston, Texas (September 15-17, 2009).

“Integrated Reservoir and Production Analysis,” Short course organized by Nautilus Engineering Training Alliance, Stavanger, Norway (May 13-18, 2009).

“Effective Presentation Skills for Petroleum Industry,” Short course organized by Innovative Petrotech Solutions for Japan Metal and Petroleum Company, JOGMAC Tokyo, Japan (February 16-18, 2009).

“Unconventional Gas Reservoirs,” Short course organized by Nautilus Engineering Training Alliance, Houston, Texas (December 2-4, 2008).

“Engineering the Coalbed Methane Reservoirs,” Workshop organized by Bandung Institute of Technology, Bandung, Indonesia (September 13-14, 2006).

“Reservoir Management and Optimized Recovery in Complex Reservoirs,” Short course organized by IHRDC, Bangkok, Thailand (May 9-13, 2005).

“Fundamentals of Reservoir Engineering,” Short Course organized by IHRDC, Port Moresby, Papua New Guinea (October 22-26, 2001).

“SPE Technical Editor Workshop,” Society of Petroleum Engineers Publications Department, New Orleans, Louisiana (September 29, 2001).

“The Whys and Hows of Publishing,” Workshop organized by the Arab Student Association, Penn State University, University Park, Pennsylvania (April 1, 2000).

How to Develop Effective Presentation Skills, Workshop organized by the Arab Student Association, Penn State University, University Park, Pennsylvania (December 4, 1999).

Optimizing Recovery from Complex Reservoirs, Abu Dhabi National Oil Company (ADNOC), Short course organized by IHRDC, Abu Dhabi, United Arab Emirates (November 1-5, 1997).

SPE Technical Editor Workshop, Society of Petroleum Engineers Publication Department, San Antonio, Texas (October 4, 1997).

Compositional Reservoir Simulation Workshop, BHP Petroleum Reservoir Engineering Group, Melbourne, Australia (March 26, 1997).

Natural Gas Reservoir Engineering, PetroVietnam, Short Course organized by IHRDC, Vung Tau, Vietnam (August 7-11, 1995).

Reservoir Simulation, PetroVietnam, Short Course organized by IHRDC, Vung Tau, Vietnam (July 24-August 4, 1995).

Improved Oil Recovery Methods, PetroVietnam, Short Course organized by IHRDC, Vung Tau, Vietnam (July 17-21, 1995).

SPE Technical Editor Workshop, Society of Petroleum Engineers Publications Department, New Orleans, Louisiana (September 24, 1994).

SPE Technical Editor Workshop, Society of Petroleum Engineers Publications Department, Washington, D.C. (October 3, 1992).

SPE Technical Editor Workshop, Society of Petroleum Engineers Publications Department, Paris, France (May 25, 1992).

SPE Technical Editor Workshop, Society of Petroleum Engineers Publications Department, Stavanger, Norway (May 22, 1992).

SPE Technical Editor Workshop, Society of Petroleum Engineers Publications Department, Tulsa, Oklahoma (April 21, 1992).

Well Testing: Principles and Applications, Short Course organized by USAID/IHRDC/EGPC, Cairo, Egypt (February 1-13, 1992).

Principles of Well Test Analysis, Middle East Technical University. Short Course organized by the Petroleum Engineering Department, Ankara, Turkey (May 20-June 7, 1991).

Reservoir Engineering, Reserves and Production Estimates and Well Testing, Saga Petroleum Benin S. Short Course organized by IHRDC, Cotonou, Benin, West Africa (March 25-April 5, 1985).

Numerical Simulation of Hydrocarbon Reservoirs, Middle East Technical University. Short Course organized by the United Nations Development Program, Ankara, Turkey (December 19, 1983 - January 6, 1984).

Principles of Well Testing and Analysis, Quaker State Oil Refining Corporation, Production Department, State College, Pennsylvania (October 19-21, 1983).

Reservoir Engineering, Schlumberger Sureenco S. A. Short Course Organized by IHRDC, Bogota, Colombia (October 28-29, 1982).

Fluid Flow Dynamics in Porous Media and Well Testing, Petroleum Engineering Fundamentals Institute, IHRDC, Boston, Massachusetts (August 24-28, 1981).

Tight Gas Sands and Well Testing, NYSEG Short Course, State College, Pennsylvania (July 15, 1981).

### **SERVICE TO THE UNIVERSITY**

Member, College of Earth and Mineral Sciences Academic Integrity Committee (2016-2017)

Member, Search Committee for the Associate Vice Provost for Global Programs (2016)

Chair, Hosler Building Renovations/Construction Committee (2015 - )

Panel member at the 2015 TOTEMS Freshmen meeting (August 2015).

Faculty Marshal, College of Earth & Mineral Sciences (August 2015).

Department Head, John and Willie Leone Family Department of Energy and Mineral Engineering (July 2013 - present).

Co-Chair, Search Committee for the Director of the Institute of Natural Gas Research at Penn State (June 2013-2014).

Faculty Marshal, College of Earth & Mineral Sciences (May 2013).

Co-Director, Institute of Natural Gas Research (INGaR) at Penn State (2013-2014).

Co-Chair, Committee for the Institute for Natural Gas Research at Penn State (2012-2013).

Chair, Task Force on Petrobras-University of Campinas, Office of Global Programs (2012).

Member, Task Force on West Indies Global Engagement Node, Office of Global Programs (2012).

Member, Task Force on Brazil Global Engagement Node, Office of Global Programs (2012).

Chair, Search Committee for the Head of the John and Willie Leone Family Department of Energy and Mineral Engineering (2012).

Faculty Marshal, College of Earth & Mineral Sciences (2011)

Member, Search Committee for the Leone Chair in Energy and Environment Economics (2010)

Faculty Marshal, College of Earth & Mineral Sciences (2010)

Member, Department of Energy and Mineral Engineering Faculty Activity Analysis Committee (2010).

Chair, Petroleum and Natural Gas Engineering Senior Faculty Search Committee (2009-10).

Member, Task Force on South East Asia Global Engagement Node, Office of Global Programs (2009)

Co-Chair, Task Force on Middle East Global Engagement Node, Office of Global Programs (2009)

Member, Department of Energy and Mineral Engineering Promotion and Tenure Committee (2009-11)

Member, EMS Faculty Performance Evaluation Committee (2008-2009)

Member, Department of Energy and Mineral Engineering Faculty Activity Analysis Committee (2009)

Member, Penn State Faculty Scholar Medal Selection Panel in Engineering (2007 – 2010)

Chair, Petroleum and Natural Gas Engineering Faculty Search Committee for Faculty Positions (2007-09)

Member, EMS Advisory Committee on the EMS Nominations for Distinguished Professorship (2007)

Member, Department of Energy and Mineral Engineering Promotion and Tenure Committee (2007-08)

Chair, Mining Engineering Faculty Search Committee for the Junior Faculty Position (2006-07)

Chair, Mining Engineering Faculty Search Committee for the Deike Chair (2006-07)

Chair, Petroleum and Mineral Engineering Theme Group (2005-06)

Chair, EMS Advisory Committee on the EMS Nominations for Evan Pugh Professorship (2005-06)

Chair, Energy and Geo-Environmental Engineering Promotion and Tenure Committee (2005-2006)

Member, EMS Faculty Performance Evaluation Committee (2004-2005)

Member, EGEE—Undergraduate Course Consolidation Committee (2004- )

Chair, EGEE—Mineral and Petroleum Engineering Graduate Program Development Committee (2004- )

Member, Energy and Geo-Environmental Engineering Promotion and Tenure Committee (2004-2005)

Chair, Energy and Geo-Environmental Engineering 2005-08 Strategic Planning Committee (2004- )

Faculty Marshal, College of Earth & Mineral Sciences (August, 2004)

Chair, Petroleum and Natural Gas Engineering Faculty Search Committee (2003-2004)

PNGE Graduate Program Officer (2003- )

Chair, EGEE Faculty Activity Analysis Panel (2002-2003)

Chair, EGEE Strategic Planning Committee (2002-2003)

Chair, EMS Screening Committee on the EMS Nominations for Distinguished Professor (2002)

Member, EGEE ABET Committee (2001- )

Member, EGEE Promotion and Tenure Committee (2001-2003)

Chair, EGEE Faculty Activity Analysis Panel (1999-2001)

Member, EMS Information Science and Technology Committee (1999- )

Member, EMS Scholarships Committee (1998-2001)

Chair, EGEE Scholarships and Awards Committee (1998-2001)

Chair, EGEE ABET 2000 Preparation Committee (1998-2001)

Member, Leonhard Center Faculty Advisory Board (1998- )

Associate Department Head, Energy and Geo-Environmental Engineering (1998-2001)

Chair, EMS Academic Administrative Review Committee (1997)

Co-Chair, Mineral Engineering-Fuel Science Merger Committee (1997)

Chair, Petroleum and Natural Gas Engineering Faculty Search Committee (1997-1998)

Member, Mineral Engineering Promotion and Tenure Committee (1997-1998)

Co-director, Petroleum GeoSystems (1997- )

Co-director, Center for Virtual Operations Research (1997- )

Member, EMS Faculty-Staff Relations Committee (1997)

Member, EMS Post-Tenure Review Committee (1997)

Member, Mineral Engineering Strategic Planning Committee (1995-96)

Member, EMS UPAC (1995- )

Member, Co-op Faculty Advisory Committee (1995-96)

Faculty Marshal, College of Earth & Mineral Sciences (1995)

Member, E&MS Environment Committee (1993-2002)

Faculty Marshal, College of Earth & Mineral Sciences (May, 1993)

Member, E&MS Promotion and Tenure Committee (1992-1997)

Chair, Mineral Engineering Promotion and Tenure Committee (1992-97)

Chair, E&MS Academic Administrative Evaluation Committee (1991)

Member, E&MS Promotion and Tenure Committee (1987-89)

Chair, Mineral Engineering Promotion and Tenure Committee (1987-89)

Ombudsman, E&MS (1986-2002)



Chair, E&MS Faculty Advisory (Steering) Committee (1984-2002)

Chair, Petroleum & Natural Gas Engineering(1984-1998, 2002-2014)

Chair, Turkiye Task Force at Penn State (1992-1998)

Member, Mineral Engineering Promotion and Tenure Committee (1989-91)

Member, E&MS Promotion and Tenure Committee (1987-89)

Member, Computer Information Systems Committee (1990)

Member, E&MS Planning Committee (1987-89)

Member, E&MS Rules and Procedures Committee (1987-889)

Faculty Marshal, College of Earth & Mineral Sciences (May, 1986)

Member, Mineral Engineering Department Head Search Committee (1986)

Member, Mineral Engineering Promotion and Tenure Committee (1985-86)

Member, E&MS Computer Committee (1982-85)

Member, E&MS Research Advisory Committee (1982-85)

### **SERVICE TO GOVERNMENTAL AND PUBLIC AGENCIES**

Member, SPE Climate Change Strategy Implementation Workforce (October 2017 - ).

Member, SPE Predictive Data Driven Analytics (PD2A) Workshop Committee (May 2017 - ).

Member, SPE Awards and Recognition Committee, (June 2016 - ).

Member, SPE Task Force on Climate Change (June 2016 – May 2107).

Member, SPE Reservoir Description and Dynamics Advisory Committee (June 2016 - ).

Ex-Officio Member, SPE/AIME Distinguished and Honorary Member Selection Committee (June 2016 - ).

Judge, SPE Turkey Section Student Paper Contest Graduate Division, Istanbul, Turkey (June 2016).

Senior Advisor, Society of Petroleum Engineers Task Force on Climate Change (May 2016 - ).

Senior Advisor, Society of Petroleum Engineers Reservoir Description and Dynamics Advisory Committee (May 2016 - ).

Chair, SPE/AIME Distinguished and Honorary Member Selection Committee (October 2015 - ).

Discussion Leader, Understanding the Reservoir—Pore Scale Physics, Multi Society Summit on Unconventional Plays—Reservoir Meets Reserves, The Woodlands, Texas, (August 17-18, 2015).

Technical Program Committee Member, SPE/SIAM Large Scale Computing and Big Data Challenges in Reservoir Simulation Conference, Istanbul, Turkey (September 15-17, 2014).

SPE/AIME Honorary Member Selection Committee Member (October 2013 – September 2015).

Judge, SPE Turkey Section Student Paper Contest Graduate Division, Istanbul, Turkey (June 2014).

Session Chair at the International Shale Gas Conference organized by the Turkish Chamber of Petroleum Engineers and Turkish Association of Geologists, Ankara, Turkey (February 2013).

Technical Program Committee Member, International Shale Reservoirs Conference, Ankara, Turkey (February 2013).

Panel Member at the CO<sub>2</sub> Capture and Storage Regional Awareness Raising Workshop, organized by CCS Europe, Ankara, Turkey (June 2012).

Session Chair at the CO<sub>2</sub> Capture and Storage Regional Awareness Raising Workshop, organized by CCS Europe, Ankara, Turkey (June 2012).

SPE Technical Program Committee Member for the 2013 SPE Unconventional Resource Conference & Exhibition, Brisbane, Australia (2012-2013).

SPE Session Chair at the 2012 Western Regional Meeting, Bakersfield, California (March 2012).

Judge, SPE Western Regional Student Paper Contest, PhD Division, Bakersfield, California (March 2012).

SPE Technical Program Committee Member for the 2013 18th Middle East Oil & Gas Show and Conference in Bahrain 10-13 March 2013 (2012- ).

Committee Member, SPE Nico van Wingen Fellowship Committee (2011- )

Panel member at the SPE History Matching Workshop: Field Experiences and Lessons Learned, Cartagena, Colombia (August 2011).

Session Chair at the SPE 2010 Annual Techn. Conf. and Exhibition on Advanced Developments in Reservoir Simulation (September 2010).

Judge, SPE Turkey Section Student Paper Contest, Undergraduate Division, Istanbul, Turkey (June 2010).

Session Chairman, World Engineering, Science and Technology Congress (ESTCON2010) Kuala Lumpur, Malaysia (June 2010).

Member, SPE Petroleum Engineering Education Forum Program Committee (2010).

Editor-in-Chief, Journal of Petroleum Exploration and Production Technology (2010- ).

Moderator, SPE Rocky Mountain-Eastern Regional Student Paper Contest, University Park, Pennsylvania (April 2010).

Member of the Organization Committee and Session Chair, SPE Forum Series on Artificial Intelligence Technology (2008-09).

Member of the Organization Committee and Discussion Leader, SPE Forum Series on Artificial Intelligence Technology (2008-09).

Member, SPE Reprint Series Committee on Coalbed Methane Reservoir Engineering (2007 - ).

Review Chair, SPE Reservoir Engineering Journal Technical Editors Team Reservoir Management and Analysis (2007- 2010)

Member, SPE Research and Development Committee (2007 - 2010).

SPE Technical Program Committee Member for the International Petroleum Technology Conference Series in Asia (2007- 2011).

Discussion Leader at the SPE Forum Series on 'Stranded Gas: The Next Challenge', (2007).

Technical Editor, SPE Reservoir Engineering Journal (2006-2007).

SPE Technical Program Committee Member for the 2007 SPE Eastern Regional Meeting (2006-07).

International External Examiner, Universiti Teknologi Petronas, Malaysia (2007- 2013).

Chair, SPE Management and Information Award Committee (2005- 2007).

Session Chair at the SPE 2005 Annual Techn. Conf. and Exhibition on Professional Ethics and Training: A New Breed of Petroleum Engineers (Education Training and Professionalism) (October 2005).

Member, SPE Education, Training and Professionalism Subcommittee for the 2005 SPE Annual Technical Conference and Exhibition (2005-06).

ABET-EAC Program Evaluator, University of Texas at Austin, Austin, Texas (November 2004).

Steering Committee Member for SPE 2005 North American Forum on Technology. Development (2004-2005).

Member, SPE Management and Information Award Committee (2004- 2005).

Chair, SPE Education, Training and Professionalism Subcommittee for the 2005 SPE Annual Technical Conference and Exhibition (2004-05).

Panel Member of the Peer Review of Energy Information Agency's Offshore Oil and Gas Supply Module, National Energy Modeling System (April 2004).

Panel Member of the Peer Review of Natural Gas Supply Curves, Non-Electric Demand Curves and Transportation Adders for EPA Applications of IPM (October 2003).

Panel Moderator at the SPE 2003 Annual Technical Conference and Exhibition on Metrics and Professional Development (Education and Professionalism) (October 2003).

International External Examiner, University of West Indies, Trinidad and Tobago (2003- ).

Panel Member at the SPE Advanced Technology Workshop on Virtual Intelligence (February 2003).

SPE Education, Training and Professionalism Technical Program Committee Member (2002- ).

e-Guest, SPE Simulation Technical Information Group (March 2001).

SPE Technical Program Committee Member for the 2002 Eastern Regional Meeting (2001-02).

Technical Session Chair, 17th International Mining Congress of Turkey (June 2001).

Member, Organizing Committee of the 17th International Mining Congress of Turkey (2000-2001).

SPE Nominating Committee Member (2000-2001).

Technical Session Chair, International Conference on Modern Approaches to Flows in Porous Media, Russian Academy of Sciences, Moscow, Russia (September 1999).

Commencement Speaker at the 30th Year Reunion, Middle East Technical University (June 1999).

SPE Technical Program Committee Member for the 1999 Eastern Regional Meeting (1998-99).

Technical Session Chair, SPE 1998 Eastern Regional Meeting (November 1998).

Member, United States National Committee for the 16th World Petroleum Congress (1998-99).

SPE Technical Program Committee Member for the 1998 Eastern Regional Meeting (1997-98).

Member, SPE/EAC Ad-hoc Committee on Petroleum Engineering Programs Equivalency (1996-97).

Chair, SPE Journal of Petroleum Technology Special Series Committee (1996-98).

SPE Journal of Petroleum Technology Special Series Committee Member (1995-96).

Past President, Association of Heads of U.S. Petroleum Engineering Schools (1996-97).

President, Association of Heads of U.S. Petroleum Engineering Schools (1995-96).

Secretary and President Elect, Association of Heads of U. S. Petroleum Engineering Schools (1994-95).

Judge, SPE International Student Paper Contest - Ph.D. Division (September 1994).

Steering Committee Member, North American Coalbed Methane Forum (1994-98).

SPE Technical Program Com. Member for the 1995 Low Permeability Reservoirs Symposium (1994-95).

SPE Technical Program Committee Member for the 1994 Eastern Regional Meeting (1994).

Judge, SPE International Student Paper Contest - Ph.D. Division (October 1993).

SPE Technical Program Committee Member for the 1993 Eastern Regional Meeting (1993).

Technical Session Chairman, SPE Low Permeability Reservoirs Symposium (April 1993).

Executive Editor, SPE Formation Evaluation Journal (1992-94).

SPE Technical Program Committee Member for the 1993 Low Permeability Reservoirs Symp. (1992-93).

SPE Technical Editor Workshop Implementation Committee Member (1991-92).

SPE Observer for Program Evaluation for the Accreditation Board for Engineering & Technology Inc. (October 1991).

Program Evaluation for the Accreditation Board for Engineering & Technology Inc. (October 1990- ).

Review Committee Chairman, SPE Formation Evaluation Journal (1990-92).

SPE Pressure Transient Analysis Program Committee Member (1989-91).

Technical Session Chairman, SPE Eastern Regional Meeting (October 1989).

Texas Higher Education Coordinating Board Energy Review Panel Member (September 1989).

Panel Chairman, The Geoscience Institute Eastern Regional Meeting (June 1988).

Member, Board of Directors of the Geoscience Inst. for Oil and Gas Recovery Research (April 1987-91).

Judge, SPE International Student Paper Contest-Graduate Division (October 1986).

SPE editorial review committee member (September 1984-December 1988).

Technical Session Chairman, National Conference of Petroleum Independents (May 1985).

Technical Expert for United Nations Development Program. (December 1983-January 1984; July 1985).

Technical Session Chairman, SPE Eastern Regional Meeting (November 1983).

Program committee member of SPE Eastern Regional Meeting (March-November 1983).

Organizing committee member for the NATO Advanced Study Institute on Heavy Oil Recovery – An International Summer School, Ankara, Turkey (September 1981-July 1982).

Technical expert to the Pennsylvania Oil and Gas Association for the preparation of the application for recommendation that certain portions of the Medina sandstone be designated as a tight formation pursuant to the regulations of the Federal Energy Regulatory Commission (1980-1981).

New York State Department of Environmental Conservation Division of Mineral Resources Employee Interview Panel Member (1980).

Member of the Editorial Committee of Turkish Petroleum Magazine (1972-1975).

Treasurer of the Chamber of Petroleum Engineers of Turkey (1973-1974).

Executive officer of the Chamber of Petroleum Engineers of Turkey (1971-1973).

## **CONSULTING ACTIVITIES**

United Nations Development Program, North Atlantic Treaty Organization, Pennsylvania Oil and Gas Association, International Human Resources Development Corporation, New York State Department of Environmental Conservation, Wainoco Oil and Gas Company, Envirogas Company, Zinder Associates, NYSEG, Marapeg Well Services, Lenape Resources Corporation, Quaker State Oil Refining Corporation, Chautauqua Energy Incorporated, Baylon Oil Company, Inc., Equitable Resources, Schlumberger Sureco, S. A. Colombia, Saga Petroleum Benin A. S., West Africa, Lobbe Technologies Ltd., Oil Well Automation Services, Columbia Gas Transmission Company, King Fahd University of Petroleum and Minerals, United States Agency for International Development, King Saud University, Egyptian General Petroleum Company, Saudi Aramco, PetroVietnam, BHP Research - Melbourne, Australia, Abu Dhabi National Oil Company, McGraw-Hill, Kuwait University, Petroleum Ministry of Papua New Guinea, Malkewicz Hueni Associates, Inc., Holt, Rinehart and Winston, United Arab Emirates University, Sultan Qaboos University, Perrin Quarles Associates, Inc., Dalhousie University, Energy Information Administration., University of West Indies, PennWell Publishing, Bandung Institute of Technology, PETRONAS University of Technology, Quantum Reservoir Impact, Innovative Petrotech Solutions, Inc., Nautilus Engineering Training Alliance, Power Technology Transfer, Zadco, United Arab Emirates. Talarico and Niebauer, Anadarko Oil Company, China National Offshore Oil Corporation, British Gas Group, Formoza Petro-Chemical Company, Escuela Superior Politécnica del Litoral (ESPOL Ecuador), Barnes and Dulac PC.

## **AWARDS AND HONORS**

The Pennsylvania State University Professor Emeritus Recognition (July 2017)

American Institute of Mining Metallurgical and Petroleum Engineers Honorary Membership Award (Oct. 2013).

Society of Petroleum Engineers Honorary Membership Award (October 2013).

The Russian Academy of Natural Sciences' Nobel Laureate Physicist Kapitsa Gold Medal (September 2013).

The Pennsylvania State University, College of Earth and Mineral Sciences "Faculty Mentoring Award" (April 2009).

Society of Petroleum Engineers Publications Division "Outstanding Associate Editor Award" (October 2008).

Society of Petroleum Engineers Publications Division "A Peer Apart" Award (November 2007).

Society of Petroleum Engineers Distinguished Lecturer (September 2004 – May 2005).

The Pennsylvania State University, College of Earth and Mineral Sciences Matthew J. and Anne C. Wilson Award for Excellence in Research (April 2004).

Society of Petroleum Engineers Distinguished Member Award (October 2001).

Society of Petroleum Engineers Lester C. Uren Award for Distinguished Achievement in the Technology of Petroleum Engineering (October 2001).

George E. Trimble Chair in Earth and Mineral Sciences, The Pennsylvania State University (2001- ).  
The Pennsylvania State University Faculty Service Award (December 2000).

The Pennsylvania State University, College of Earth and Mineral Sciences Matthew J. and Anne C. Wilson Outstanding Service Award (May 1999).

Society of Petroleum Engineers Distinguished Achievement Award for Petroleum Engineering Faculty (September 1998).

The Pennsylvania State University Graduate Faculty Teaching Award (April 1995).

Quentin E. and Louise L. Wood Fellow in Petroleum & Natural Gas Engineering, The Pennsylvania State University, College of Earth and Mineral Sciences (1990-2001).

The Pennsylvania State University, College of Earth and Mineral Sciences Matthew J. and Anne C. Wilson Outstanding Teaching Award (April 1982).

## **PROFESSIONAL SOCIETIES**

Member, Society of Petroleum Engineers of AIME (1974- )

Member, Society of Industrial and Applied Mathematics (1984- )

Member, American Society for Engineering Education (1995- )

Member, Petroleum Society of CIM (2001- )

## **GENERAL**

Born: July 9, 1947; Ayvalik, Turkey  
Marital Status: Married with two adult children.  
Office Address: The Pennsylvania State University  
Petroleum and Natural Gas Engineering 158  
Hosler Building, U. Park, PA 16802  
Office Phone: (814) 865-6082  
Mobile: (814) 883-7584  
Office Fax: (814) 863-5709  
e-mail: eur@psu.edu  
Home Address: 279 Blackberry Hill  
Port Matilda, PA 16870  
Home Telephone: (814) 238-1055