

Faculty Curriculum Vitae

NAME: Guan Qin

EDUCATION

- Ph.D. Petroleum Engineering, University of Wyoming, U.S.A., 1995
- M.E. Petroleum Engineering, Research Institute for Petroleum Exploration & Development, China National Petroleum Corporation, China, 1987
- B.S. Engineering Mechanics, Tsinghua University, China, 1984

ACADEMIC EXPERIENCE

- 2016 – present: Associate Professor, Department of Petroleum Engineering
- 2012 – 2016: Associate Professor, Petroleum Engineering Program, Department of Chemical & Biomolecular Engineering, University of Houston
- 2009 – 2012: School of Energy Resources Distinguish Associate Professor of Petroleum Engineering, Department of Chemical & Petroleum Engineering, University of Wyoming, U.S.A.
- 2008 – 2012: Adjunct Professor, Department of Energy & Resource Engineering, College of Engineering, Peking University, China
- 2004 – 2008: Director for Research, Institute for Scientific Computation, Texas A&M University
- 2004 – 2007: Assistant Vice President, Office of Vice President for Research, Texas A&M University
- 1995 – 1996: Post-doctoral Research Associate, Institute for Scientific Computation, Texas A&M University

NON-ACADEMIC EXPERIENCE

- 2000 – 2004: Engineering Specialist, Exxon Mobil Upstream Research Company
- 1998 – 1999: Staff Engineer, Upstream Strategic Research Center, Mobil Technology Company
- 1997 – 1998: Senior Engineer, Upstream Strategic Research Center, Mobil Technology Company
- 1996 – 1997: Post-doctoral Research Fellow, Upstream Strategic Research Center, Mobil Technology Company
- 1987 – 1989: Reservoir Engineer, Research Institute of Petroleum Exploration & Development, China National Petroleum Corporation

CURRENT MEMBERSHIP IN PROFESSIONAL ORGANIZATION

- Member of Society of Petroleum Engineers

SERVICE ACTIVITIES (within and outside of the institution)

- Cullen College of Engineering Grievance Committee
- Department Tenure & Promotion Committee
- Department Faculty Search Committee
- Department Ph.D. Committee

Faculty Curriculum Vitae

Reviewers of Following Journals

- Chaos
- Transport Phenomena in Porous Media
- Computers and Geosciences
- Mathematical Geosciences
- Journal of Petroleum Science and Engineering
- Journal of Natural Science and Engineering
- Interpretation
- GeoFluid

RECENT PUBLICATIONS

Refereed Journal Publications

1, Numerical Modeling and Simulation of Coupled Processes of Mineral Dissolution and Fluid Flow in Fractured Carbonate Formations

Yuan, T., Ning, Y. and Qin, G.*

Transp Porous Med, Volume: 114, Issue: 3, Pages: 747 – 775, September 2016.

2, Effective Local-Global Upscaling of Fractured Reservoirs under Discrete Fractured Discretization

Li, J., Lei, Z., Qin, G. and Gong, B.,

Energies 2015, 8, 10178-10197; doi:10.3390/en80910178

3, Molecular Simulation of Natural Gas Transport and Storage in Shale Rocks with Heterogeneous Nano-pore Structures

He, S. , Jiang, Y. , Conrad, J.C., Qin, G.*

Journal of Petroleum Science and Engineering, Volume 133, September 2015, Pages 401–409

4, Numerical Modeling of Slippage and Adsorption Effects on Gas Transport in Shale Formation Using Lattice Boltzmann Method

Ning, Y. †, Jiang, Y. †, Liu, H. , Qin, G.*

Journal of Natural Gas Science and Engineering, Volume 26, September 2015, Pages 345–355

5, A Novel Approach to Model Enhanced Coal Bed Methane Recovery with Discrete Fracture Characterizations in a Geochemical Simulator,

Gong, B., Zhang Y., Fan Y., Qin, G.,

Journal of Petroleum Science and Engineering, 104 (2014) 198-208

6, A Lattice Boltzmann Model for Multi-Component Vapor-Liquid Two Phase Flow

Gong, B., Liu, X., Qin, G.,

Petroleum Exploration & Development, Volume 41, Issue 5, (2014) pp. 1-8.

7, Reliable and Efficient Error Control for An Adaptive Galerkin-Characteristic Method for Convection-Dominated Diffusion Problems

Cui, M., Chen, Z., Ewing, R.E., Qin, G., Chen, H. †††,

Advances in Computational Mathematics, Volume 37, Number 3 (2012), pp. 319 - 353

8, An Hybrid Upscaling Procedure for Modeling of Fluid Flow in Fractured Subsurface Formation

Gong, B., Qin, G.*,

International Journal of Numerical Analysis and Modeling, Volume 9, Number 3

Faculty Curriculum Vitae

(2012), pp. 667 – 683

9, Intelligent Fracture Creation For Shale Gas Development

Douglas, C. C., Qin, G., Collier, N., Gong, B.,

Procedia Computer Science, 4 (2011), pp. 1745-1750.

SPE Conference Proceedings

1, Permeability Prediction for Shales Based on Digital Rock Reconstruction Using Multi-scale Simulations by Lattice Boltzmann Method

Y. Ning, S. He, H. Liu, H. Wang, G. Qin*

Paper IPTC-18845-MS in the **Proceeding of International Petroleum Technology Conference**, Bangkok, Thailand, 14 – 16 November, 2016

2, Transport Properties of Natural Gas in Shale Organic and Inorganic Nano-Pores Using Non-Equilibrium Molecular Dynamics Simulation

S. He, Y. Ning, T. Chen, H. Liu, H. Wang, G. Qin*

Paper IPTC-18875-MS in the **Proceeding of International Petroleum Technology Conference**, Bangkok, Thailand, 14 – 16 November, 2016

3, A Rigorous Upscaling Procedure to Predict Macro-scale Transport Properties of Natural Gas in Shales by Coupling Molecular Dynamics Simulation with Lattice Boltzmann Method

Y. Ning, S. He, H. Liu, H. Wang, G. Qin*

Paper SPE 181689 in the **Proceeding of SPE Annual Technical Conference and Exhibition, Dubai, U. A. E.**, 26 – 28 September, 2016

4, Upscaling in Numerical Simulation of Shale Transport Properties by Coupling Molecular Dynamic Simulation with Lattice Boltzmann Method

Paper URTeC-2459219 in the **Proceeding of Unconventional Resources Technology Conference, San Antonio, Texas, USA**, 1 – 3 August, 2016

5, Estimation of Transport Diffusivity of Natural Gas in Organic Matter Using Molecular Dynamic Simulations

S. He, Y. Ning, T. Chen, H. Liu, H. Wang, G. Qin*

Paper SPE 180198 in the **Proceeding of SPE Low Perm Symposium, Denver, Colorado, USA**, 5 – 6 May, 2016

6, Modified Hybrid Fracturing in Shale Stimulation: Experiments and Application

Y. Li, C. Yin, S. Wang, B. Xu[†] and G. Qin

Paper SPE 177004 in the **Proceeding of SPE Asia Pacific Unconventional Resource Conference and Exhibition, Brisbane, Australia**, 9 – 11 November, 2015.

7, Simulation of Shale Gas Transport in 3D Complex Nanoscale-Pore Structures Using the Lattice Boltzmann Method

Y. Ning[†], Y. Jiang[†] and G. Qin*

Paper in the **Proceeding of SPE Asia Pacific Unconventional Resource Conference and Exhibition, Brisbane, Australia**, 9 – 11 November, 2015.

8, Molecular Dynamics Simulation on Modeling Shale Gas Transport and Storage Mechanisms in Complex Nano-Pore Structure in Organic Matters

S. He[†], Y. Jiang, H. Liu and G. Qin*

Paper in the **Proceeding of Unconventional Resources Technology Conference**, San Antonio, Texas, USA, 20 – 23 July, 2015.

9, Diagnostics of Casing Deformation in Multi-Stage Hydraulic Fracturing Stimulation

Faculty Curriculum Vitae

in Lower Silurian Marine Shale Play in Southwestern China

B. Qian, C. Yin, Y. Li, B. Xu[†] and G. Qin^{*}

Paper in the **Proceeding of Unconventional Resources Technology Conference**, San Antonio, Texas, USA, 20 – 23 July, 2015.

10, Numerical Simulation of Natural Gas Transport in Shale Formation Using Generalized Lattice Boltzmann Method

Y. Ning[†], Y. Jiang[†] and G. Qin^{*}

Paper IPTC 18117 in the **Proceeding of International Technology Conference, Kuala Lumpur, Malaysia**, 10 – 12 December, 2014.

11, Microstructure Characterization for a Shale Gas Reservoir by Combining Visualization Technique and Physical Measurement

C. Wei[†] and G. Qin^{*}

Paper SPE 167610 in the **Proceeding of SPE Unconventional Resources Conference and Exhibition – Asia Pacific held in Brisbane, Australia**, 11-13 November, 2013.

12, Experimental and Numerical Studies on the Micro-fractures and its Significance toward Production of Shales: a Case Study

C. Wei[†], Y. Wang, G. Qin, Q. Li, J. Killough

Paper SPE 165723 in the **Proceeding of SPE Eastern Regional Meeting held in Pittsburgh, Pennsylvania, USA**, 20-22 August, 2013.

13, Numerical Simulation of Hydraulically Induced Fracture Network Propagation in Shale Formation

Y. Li, G. Qin and C. Wei[†]

Paper IPTC 2628 in the **Proceeding of International Petroleum Technology Conference held in Beijing, China**, March 2013.

14, Potential Investigation of Shale Gas Reservoirs, Southern China

C. Wei[†], H. Wang, S. Sun and G. Qin^{*}

Paper SPE 162828 in the **Proceeding of SPE Canadian Unconventional Resources Conference, Calgary, Canada**, October 30 – November 1, 2012.

15, Optimizing Hydraulic Fracturing Design Through Numerical Simulations

Y. Li, C. Wei[†], Y. Lu and G. Qin^{*}

SPE 157411 in the **Proceeding of SPE 2012 International Production and Operation Conference and Exhibition**, May 14-16, 2012, Doha, Qatar.

16, Data-driven Monte Carlo Simulations in Estimating the Stimulated Reservoir Volume (SRV) by Hydraulic Fracturing Treatments

R. Chen, B. Gong, G. Qin^{*}, and B. Xu[†]

Paper SPE 154537 in the **Proceeding of SPE EUROPEC 2012, Copenhagen, Denmark**, June 4 – 7, 2012.

17, Discrete Modeling of Natural and Hydraulic Fractures in Shale Gas Reservoirs

B. Gong, G. Qin^{*} and B. F. Towler

Paper SPE 146842 in the **Proceeding of SPE Annual Technical Conference and Exhibition ATCE 2011, Denver, Colorado**, Oct 31 – Nov 2, 2011.

18, Development of A Fast Auxiliary Subspace Pre-conditioner for Numerical Reservoir Simulation

X. Hu, W. Liu, G. Qin^{*}, J. Xu and C. Zhang

Paper SPE 148388 in the **Proceeding of SPE Reservoir Characterization and Simulation Conference and Exhibition, Abu Dhabi**, Sep 26-28, 2011.

Faculty Curriculum Vitae

19, *Intelligent Fracture Creation for Shale Gas Development*

C. D. Douglas, G. Qin, N. Collier and B. Gong

International Conference in Computational Science, ICCS 2011.

20, *Multi-scale and Multi-physics Methods for Numerical Modeling of Fluid Flow in Fractured Formations*

G. Qin ^{*}, B. Gong, L. Bi [†] and X. Wu

Paper SPE-143590 in the **Proceeding of SPE EUROPEC 2011, Vienna, Austria, 23 – 26 May, 2011.**

21, *Detailed Modeling of the Complex Fracture Network and Near-well Effects of Shale Gas Reservoirs*

G. Qin ^{*}, B. Gong and C.C. Douglas

Paper SPE-142705 in the **Proceeding of International Unconventional Gas, Omen, 31 January – 2 February 2011.**

MOST RECENT PROFESSIONAL DEVELOPMENT ACITIVITIES

- Numerical Pore-scale Modeling and Simulation Consortium. PI: Guan Qin, Co-PIs: Ganesh Thakur and Jeremy Palmer.
- Shale Gas Reservoir Stimulation Implementation Conditions and Productivity Analysis, PetroChina Company Limited, PI: Guan Qin, 2013 – 2015.
- Research & Software Development on Estimating Stimulated Reservoir Volume (SRV) and Production Performance, PetroChina Company Limited, PI: Guan Qin, June 1, 2014 – May 31, 2016.
- DMS: Collaborative Research: Modeling and analysis of fracture network for shale gas development and its environmental impacts, National Science Foundation, September 1, 2012- August 31, 2016.
- Multi-scale and multi-physics modeling of unconventional gas development, PI: Guan Qin, Co-PIs: Craig C. Douglas and Shunde Yin, School of Energy Resources, University of Wyoming, July 1, 2010 – June 30, 2011.
- Modeling and simulation on the geological storage of carbon dioxide in Rock Spring Uplift, Southwest Wyoming, PI: Guan Qin, School of Energy Resources, University of Wyoming, November 1, 2010 – October 31, 2012.
- Development of Chemical Flooding Reservoir Simulator, PI: Guan Qin, Co-PIs: Jinchao Xu, Wei Liu and Bin Gong, China National Offshore Oil Corporation (Cnooc), January 1, 2008 – March 31, 2011