

Ibrahim Mohamed Ahmed Mohamed

Home country: Egypt

Current location: Texas, USA

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Education

PhD, Petroleum Engineering, December 2012

Topic: Formation Damage Due to CO₂ Sequestration in saline aquifer

GPA: 4.0

Texas A&M University, Petroleum Engineering, College Station, Texas

MSc, Petroleum Engineering, June 2009

Thesis: " Development of a Simulator for Multi-Stage Multi-Zone Carbonate Matrix Acidizing"

Cairo University, Faculty of Engineering, Giza, Egypt

Pre MSc, Petroleum Engineering, June 2007

Cairo University, Faculty of Engineering, Giza, Egypt

Grade: 82.6 % (Very Good)

BSc, Petroleum Engineering, July 2006

Cairo University, Faculty of Engineering, Giza, Egypt

Cumulative Grade: **85.87 %** (Distinction with honor degree)

Professional Experience

Apr 2007-
Aug 2009

Geomechanics Engineer

Informateks International, Inc.

Cairo, Egypt

Worked with the Geomechanics team on contracted projects on cuttings injection, well test analysis, wellbore stability, etc. Based in Cairo, but time spent in Houston, as well as on site analysis and monitoring of cuttings injection project in Cashiriari, Peru.

Sept 2006-
June 2009

Teaching Assistant (Junior Staff)

Petroleum Engineering Department, Cairo University, Cairo, Egypt

Teaching assistant providing technical consultation and help sessions for students in the following course subjects:

- ❖ "Artificial Lift" for 4th Year Pet. Eng. students in 2007
- ❖ "Field Processing of Natural Gas" for 4th Year Pet. Eng. students in 2006 and 2007
- ❖ "Natural Gas Engineering" for 3rd year Pet. Eng. students in 2006 and 2007.
- ❖ "Physical Chemistry" for 2nd year Pet. Eng. students in 2006 and 2007.
- ❖ "Structural Geology" For 2nd year Civil Eng. students in 2006.
- ❖ "Well Testing" for 2nd year Pet. Eng. students in 2005 and 2006.

Honors

- Schlumberger Distinguished Student Award, 2004
- Schlumberger Scholarship Award, 2006

Personal Achievements

- Pre-Master Rank: #1 out of more than 30 students
- Graduation Cumulative Rank: #1 out of 110 students

- Grade “A” for 2006 graduation project: “Integrated Field Study for Raml Field”, an operating field of Agiba Petroleum Company, located in the Western Desert, Egypt
- GPA: 4.0 during my PhD study at Texas A&M University

Project Experience

- **Drill Cutting Injection (DCI):** Worked on multiple DCI projects with Informatiks/Advantek with responsibilities including:
 - Developing a geomechanical model for 3-D fracture simulations of slurried cuttings injection, including populating the lithological column and estimating mechanical properties.
 - Injection process design, simulation and estimations of operating pressures, maximum safe injection volume.
 - Monitoring and analysis of injection performance at field site and semi-real time in office.
- **Water Disposal:** studying the behavior of several Class II injector wells in the USA with responsibilities including:
 - Put together the treatment design to retain and/or restore formation injectivity to accommodate more volume of waste fluids
 - Surface treatment of injected fluid to avoid formation damage by the incompatibility between injected and formation fluids
 - Estimate the formation properties by history matching the injection pressures and flow rates with different fluid flow models
- **PhD Project:** Studying the effects of chemical reactions between CO₂/brine/rock on formation permeability and porosity during CO₂ Sequestration to assess potential damage and/or enhancement associated with these reactions.
- **Well Test Analysis:** Fall off and step rate test data analysis for injection wells to estimate fracture dimensions and formation properties for conventional, shale and tight gas, and waste disposal wells.
- **Expandable Casing:** Employed finite element analysis to calculate required forces to set expandable casing, and the impact of different formations types and properties (Elastic, Plastic, Poro-Elastic, Poro-Plastic, etc.).
- **Acidizing Project:** Developing a multi-stage, multi-layer acidizing simulator to estimate the productivity increase for carbonate formations
- **Graduation project (2006):** Raml Field (Agiba Petroleum Company, Egypt): Complete Field Study include Geological and Geophysical study, logging analysis, well Drilling and completion Design, calculating oil in-Place by volumetric and Material balance, history matching, Prediction of reservoir performance for next five years, and surface facilities design.

Training

- **Geo-Mechanics Engineering:** Advantek International, May 2008 – November 2008 (Houston, TX)
- **Wireline department, MDT and gamma ray logging tools:** Schlumberger, August 2005 - September 2005 (Schlumberger Base, Kattamia, Egypt)
- **Oil Reservoir, and Oil Processing:** Geisum Oil Company, July 5-19, 2004, (Gabal Al Zeet, Geisum, Egypt)
- **Oil Reservoir, and Oil Processing:** Suiz Oil Company, July 6-16, 2005, (Gabal Al Zeet, SUCO, Egypt)
- **Drilling Operations, Tripping, Cementing, and Casing:** Belayim Petroleum Company, July 31 - August 14, 2004, (Belayim, Petrobel, Egypt)

Skills

- Excellent communication and presentation Skills. Self motivated team player. Decision making, problem solving, and self learning ability. Ability to work under pressure. Open minded to new ideas and new technologies

Computer Skills

- Reservoir Simulation Software: CMG
- Programming Language: FORTRAN
- Microsoft Office: Word, Excel, Power Point
- Fracture Simulator Software: @frac, and Well Logging Analysis Software: @log
- Well Testing Software: PIE, Fekete and Ecrin
- Petroleum Experts Package : MBAL, PROSPER, and GAP
- Real Time Injection Monitoring Package: SMARTS

Languages

- Arabic: Mother tongue
- English: Very Good (Writing, Speaking, Reading and Comprehension)

Peer-Reviewed Publications

- He, J., **Mohamed, I.M.**, and Nasr-El-Din, H.A. 2013. Potential Formation Damage Due to Preparing HCl Acids Using Seawater. *Canadian Energy Technology and Innovation Journal* **1**(4):56-65
- **Mohamed, I.M.** and Nasr-El-Din, H.A. 2013. Fluid/Rock Interactions during CO₂ Sequestration in Deep Saline Carbonate Aquifers: Lab and Modeling Studies. *SPE Journal* **18**(3): 468-485
- **Mohamed, I.M.**, He, J., and Nasr-El-Din, H.A. 2013. Permeability Reduction during CO₂ Injection in Sandstone Aquifers: Lab and Simulation Studies. *Canadian Energy Technology and Innovation Journal* **1**(2): 70-81
- **Mohamed, I.M.**, He, J., and Nasr-El-Din, H.A. 2013. Experimental Analysis of CO₂ Injection on Permeability of Vuggy Carbonate Aquifers. *Journal of Energy Resources Technology* **135**(1): 013301
- **Mohamed, I.M.**, He, J., and Nasr-El-Din, H.A. 2013. Effect of Brine Composition on CO₂/Limestone Rock Interactions during CO₂ Sequestration. *Journal of Petroleum Science Research* **2**(1):14-26
- **Mohamed, I.M.** and Nasr-El-Din, H.A. 2012. Permeability Alternation and Trapping Mechanisms during CO₂ Injection in Homogenous Limestone Aquifers: Lab and Simulation Studies. *Canadian Energy Technology and Innovation Journal* **1**(1): 41-55
- **Mohamed, I.M.**, Abu El Ela, M., Dahab, A. and Abou-Sayed, I.S. 2012. Development of a Simulator for Multi-Stage Multi-Zone Carbonate Matrix Acidizing. *OIL GAS European Magazine* **38**(3): 142-148

Conference Proceeding

- **Mohamed, I.M.**, Block, G.I., Abou-Sayed, O.A., and Elkatatny, S.M. 2014. Flow Rate Dependent Skin in Water Disposal Injection Well: Case Study. Paper ARMA 14-7758 prepared for presentation at the 48th US Rock Mechanics/Geomechanics Symposium to be held in Minneapolis, MN, USA, 1-4 June.
- Elkatatny, S.M., Farid, A., **Mohamed, I.M.**, and Abou-Sayed, O.A. 2014. An Advanced, Integrated Simulator for Management of Produced Water Re-Injection in Multilayer Vertical or Horizontal Wells. Paper ARMA 14-7761 prepared for presentation at the 48th US Rock Mechanics/Geomechanics Symposium to be held in Minneapolis, MN, USA, 1-4 June.
- **Mohamed, I.M.**, He, J., and Nasr-El-Din, H.A. 2012. Formation Damage Due to CO₂ Sequestration in Deep Saline Aquifers. SPE 151142 prepared for presentation at SPE International Symposium & Exhibition on Formation Damage Control held in Lafayette, Louisiana, USA, 15–17 February.

- He, J., **Mohamed, I.M.**, and Nasr-El-Din, H.A. 2012. Mitigation of Calcium Sulfate Scale Formation When Seawater Is Used To Prepare HCl-Based Acids. Paper SPE 151143 prepared for presentation at 2012 SPE International Symposium & Exhibition on Formation Damage Control held in Lafayette, Louisiana, USA, 15-17 February.
- Musharova, D., **Mohamed, I.M.**, and Nasr-El-Din, H.A. 2012. Detrimental Effect of Temperature on Fines Migration in Sandstone and Shale Formations. SPE 150953 prepared for presentation at SPE International Symposium & Exhibition on Formation Damage Control held in Lafayette, Louisiana, USA, 15–17 February.
- **Mohamed, I.M.**, He, J., and Nasr-El-Din, H.A. 2012. Carbon Dioxide Sequestration in Sandstone Aquifers: How Does It Affect the Permeability? CMTC 149958 prepared for presentation at Carbon Management Technology Conference held in Orlando, Florida, 7-9 February.
- **Mohamed, I.M.**, He, J., and Nasr-El-Din, H.A. 2011. Carbon Dioxide Sequestration in Dolomite Rock. Paper IPTC-14924 prepared for presentation at the International Petroleum Technology Conference held in Bangkok, Thailand, 15–17 November 2011.
- He, J., **Mohamed, I.M.**, and Nasr-El-Din, H.A. 2011. Mixing Hydrochloric Acid and Seawater for Matrix Acidizing: Is It a Good Practice? Paper SPE 143855 prepared for presentation at the SPE European Formation Damage Conference held in Noordwijk, The Netherlands, 7–10 June.
- Mahmoud, M.A., **Mohamed, I.M.**, and Nasr-El-Din, H.A., De Wolf, C.A., and Alex, A.K. 2011. When Should We Use Chelating Agents in Carbonate Stimulation? Paper SPE-SAS-824 was prepared for presentation at the SPE Saudi Arabia Section Technical Symposium and Exhibition held in Al Khobar, Saudi Arabia, 15–18 May.
- **Mohamed, I.M.**, He, J., and Nasr-El-Din, H.A. 2011. Permeability Change during CO₂ Injection in Carbonate Formations: Experimental Study. Paper SPE 140943 prepared for presentation at SPE Production Operations Symposium held in Oklahoma City, Oklahoma, USA, 27–29 March.
- **Mohamed, I.M.**, and Nasr-El-Din, H.A. 2011. Sulfate Precipitation during CO₂ Sequestration in Carbonate Rock. Paper SPE 139828 prepared for presentation at the SPE Projects and Facilities Challenges Conference at METS held in Doha, Qatar, 13–16 February.
- **Mohamed, I.M.**, He, J., and Nasr-El-Din, H.A. 2011. Permeability Change during CO₂ Injection in Carbonate Formations: Experimental Study. Paper SPE 140979 prepared for presentation at the SPE Americas E&P Health, Safety, Security and Environmental Conference held in Houston, Texas, USA, 21–23 March.
- **Mohamed, I.M.**, Nasralla, R.A., Sayed, M.A., Marongiu-Porcu M., and Ehlig-Economides, C.A. 2011. Evaluation of After-Closure Analysis Techniques for Tight and Shale Gas Formations. SPE paper 140136 prepared for presentation at the SPE Hydraulic Fracturing Technology Conference and Exhibition held in The Woodlands, Texas, USA, 24–26 January.
- **Mohamed, I.M.**, He, J., Mahmoud, M.A., and Nasr-El-Din, H.A. 2010. Effects of Pressure, CO₂ Volume, and the CO₂ to Water Volumetric Ratio on Permeability Change during CO₂ Sequestration. Paper SPE 136394 prepared for presentation at the Abu Dhabi International Petroleum Exhibition & Conference held in Abu Dhabi, UAE, 1–4 November.
- Marinello, S.A., **Mohamed, I. M.**, Hussein, H. and Helmy, N., El-Fayoumi, A., Zaki, K., Airoidi, C., Cassanelli, J. P., and Pierce, D. 2010. Cuttings Injection and Monitoring Operations: Cashiriari Gas Field, Peru. Paper ARMA 10-452 presented at the 44th US Rock Mechanics Symposium and 5th U.S.-Canada Rock Mechanics Symposium, held in Salt Lake City, UT June 27–30.
- Marinello, S.A., **Ghoneim, I. M.**, Airoidi, C., Pierce, D., Hussein, H., Zaki, K., El-Fayoumi, A., Abou-Sayed, A. S., Cassanelli, J. P., and Suarez Pineda, C. R. 2010. Drill Cuttings Injection and Monitoring for Remote Pad Drilling Operations at Environmentally Sensitive Sites in Cashiriari, Peru. Paper AADE-10-DF-HO-29 presented at the AADE Fluids Conference and Exhibition held at the Hilton Houston North, Houston, Texas, April 6-7.