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Skills & Interests

Reservoir Quality and Evolution, Diagenesis, Basins Analysis, CO₂ Sequestration

Education

- ❖ **Ph.D., Petroleum Geology, 2013, Jackson school of Geosciences, The University of Texas at Austin, USA**
Research Group: Gulf Coast Carbon Center (GCCC), Bureau of Economic Geology
Dissertation: *Characterization and prediction of reservoir quality in chlorite-coated sandstones: evidence from the Late Cretaceous Lower Tuscaloosa Formation at Cranfield Field, Mississippi, USA*
Supervisors: Professor William Fisher and Doctor Susan Hovorka
- ❖ **M.Sc., Sedimentary Geology, 2008, Department of Earth Sciences, Uppsala University, Sweden**
Research Group: Mineralogy Petrology and Tectonics
Thesis: *Integrating diagenesis and sequence stratigraphy for reservoir quality evolution modeling*
Supervisor: Professor Sadoon Morad
- ❖ **B.Sc., Geology, 1997, Shahrood University of Technology, Iran**

Academic experiences

- ❖ **Assistant Professor**, Faculty of Mining, Petroleum and Geophysics Engineering, Petroleum Engineering Group, Shahrood University of Technology, Iran, 2020-present.
- ❖ **Assistant Professor**, Faculty of Earth Sciences, Shahrood University of Technology, Iran, 2013- 2020.
- ❖ **Graduate Research Assistant**, Gulf Coast Carbon Center, Bureau of Economic Geology, The University of Texas at Austin, USA, 2009-2013.
- ❖ **Visiting Scholar**, Gulf Coast Carbon Center, Bureau of Economic Geology, The University of Texas at Austin, USA, 2008-2009.
- ❖ **Graduate Research Assistant**, Department of Earth Sciences, Uppsala University, Sweden, 2006-2008.

Industrial experiences

- ❖ **BP America Inc., USA**, Gulf Of Mexico Exploration (GOM-X) team, Reservoir Quality Geologist, 2012.
- ❖ **Iranian Offshore Oil Company, Iran**, Exploration Department, Geologist, 2000-2006.

Academic activities

❖ **International Research Projects:**

- Joint project with *University of Liverpool, UK, Professor Richard Worden*, titled “Linking diagenesis to depositional facies of the Early Cambrian Lalun Formation in Eastern Alborz Mountain Range, west of Shahrood (Dehmola Region)”, in progress.
- Joint project with *ETH Zurich, Switzerland, Professor Judith Ann McKenzie and Professor Stefano Bernasconi*, titled “Origin and genesis of Precambrian-Cambrian stromatolitic dolomite of the Soltanieh Formation in the Alborz Mountain Range, west of Shahrood, Iran”, in progress.
- Joint project with *University of Lausanne, Switzerland, Professor Othmar Muntener*, titled “Role of rare earth elements in determining the origin of dolomite”, 2021.

❖ **Teaching;** different graduate and undergraduate courses at:

- Department of Earth Sciences, Uppsala University, Sweden, including “*Sequence Stratigraphy*”, “*Diagenesis*” and “*Sedimentary Petrology*”, 2007-2008.
- Faculty of Earth Sciences and Faculty of Mining, Petroleum and Geophysics Engineering, Shahrood University of Technology, Iran, including “*Petroleum Geology*”, “*Petroleum Geology of Iran*”, “*Sedimentary Basin Analysis*”, “*Sedimentology*”, “*Sedimentary Environment*”, “*Petroleum Geochemistry*”, “*Physical Geology*”, “*Subsurface Geology*”, 2013-Now.

❖ **Thesis supervision;** several industrial related thesis in geology and petroleum engineering, including:

- “Formation mechanisms of the evaporite minerals and their effects on reservoir quality of the Asmari Carbonate Formation in one of the oil fields, southwest of Iran”, M.Sc. thesis, 2023.
- “Application of rare earth elements in determining genesis of dolomites in the Asmari Formation reservoir of the Ghale Nar Oil Field, southwestern Iran”, M.Sc. thesis, 2021, supported by National Iranian South Oil Company.
- “Comparison of organic geochemistry of the Kazhdumi Formation in the Persian Gulf and Zagros fold-thrust belt from the sedimentary basin analysis point of view”, M.Sc. thesis, 2021.

- "Geochemical modeling and hydrocarbon generation potential evaluation of the Pabdeh Formation in one of the oil fields, southwestern Iran", M.Sc. thesis, 2019.
 - "Hybrid modeling of faults and fractures using seismic attributes and FMI log in one of the oil fields of the Persian Gulf", M.Sc. thesis, 2018.
 - "Sequence stratigraphy analysis and reservoir quality evaluation by petrophysics logs in one of the fields in south of Iran", M.Sc. thesis, 2018.
 - "Fracture analysis in reservoir rock of the Qom Formation in Urtsha Field, using surface and subsurface data", M.Sc. thesis, 2017, supported by National Iranian Oil Company.
 - "Reservoir fracture analysis using image log in one of the hydrocarbon fields in south of Iran", M.Sc. thesis, 2016.
- ❖ **Reviewer in international journals** including, *Journal of Marine and Petroleum Geology*, *Journal of Natural Gas Science and Engineering*, *American Association of Petroleum Geologists Bulletin*.
 - ❖ **Reservoir quality prediction consortium member** in BP America Inc., Touchstone modeling, 2012.

Publications

- ❖ Falahatkah, O., **Kordi, M.**, Fatemi, V., Hooshmand Koochi, H., 2021, *Recognition of Milankovitch Cycles during the Oligocene-Early Miocene in the Zagros Basin, SW Iran: Implications for paleoclimate and sequence stratigraphy*, *Sedimentary Geology*, Vol. 421, No.105957, P.1-16.
- ❖ Hazariyan, H., **Kordi M.**, Ziaii M., Soleimani Monfared, M., Yahyaei, A., 2021, *Reservoir properties evaluation based on sequence stratigraphy: A case study from the Asmari Formation in one of the Iranian oil fields*, *Scientific Quarterly Journal of Geosciences (In Persian)*, Vol. 31, No. 2, 111-122.
- ❖ Babasafari, A. A., Rezaeia, Sh., Sambo, Ch., Ghosh, D. P., Bashir, Y., Salim, A. M. A., Yusof, W. I. W., Kazemineie, S. H., **Kordi, M.**, 2021, *Practical workflows for monitoring saturation and pressure changes from 4D seismic data: A case study of Malay Basin*, *Journal of Applied Geophysics*, Vol. 195, No. 104472.
- ❖ Babasafari, A. A., Ghosh, D. P., Salim, A. M .A., and **Kordi, M.**, 2020, *Lithology-dependent seismic anisotropic amplitude variation with offset correction in transversely isotropic media*, *Geophysical Prospecting-Wiley*, Vol. 68, Issue 8, P. 2471-2493.
- ❖ Babasafari, A. A., Ghosh, D. P., Salim, A. M .A., and **Kordi, M.**, 2020, *Integrating petroelastic modeling, stochastic seismic inversion, and Bayesian probability classification to reduce uncertainty of hydrocarbon prediction: Example from Malay Basin*, *Interpretation, A Journal of Subsurface*

Characterization-American Association of Petroleum Geologist and Society of Exploration Geophysicists, Vol. 8, No. 3, P. 1-18.

- ❖ Orak, Z., **Kordi, M.**, Karimi, A. R., 2020, *Burial and thermal histories modeling for sedimentary basin analysis of the Pabdeh Formation at one of the oil fields in the Southern Dezful Embayment*, Petroleum Research (In Persian), Vol. 30, Issue 112, P. 113-128.
- ❖ Babasafari, A. A., Bashir, Y., Ghosh, D. P., Salim, A. M .A., Janjuhah, H. T., Kazemeini, S. H., **Kordi, M.**, 2020, *A new approach to Petro-Elastic Modeling of carbonate rocks using an extended pore space stiffness method, with application to a carbonate reservoir in Central Luconia, Sarawak, Malaysia*, The Leading Edge-Society of Exploration Geophysicists, Vol. 39, Issue 8, P. 529-608.
- ❖ **Kordi, M.**, 2019, *Sedimentary basin analysis of the Neo-Tethys and its hydrocarbon systems in Southern Zagros fold-thrust belt and foreland basin*, Earth Science Reviews-Elsevier, Vol. 191, P. 1-11.
- ❖ Moradi, M., Tokhmechi, B., **Kordi, M.**, Masoudi, P., 2019, *Gamma-clustering sequence stratigraphy, case study of the carbonate Sarvak Formation, Southwest Iran.*, SN Applied Sciences- Springer, 1:1369.
- ❖ **Kordi, M.**, 2019, *Role of authigenic clay minerals in preserving primary porosity and permeability of the sandstone hydrocarbon reservoirs*, Journal of Stratigraphy and Sedimentology Researches (In Persian), Vol. 76, No. 3, P. 37-56.
- ❖ Samadi, I., **Kordi, M.**, Soleimani Monfared, M., Ahmadi, M., 2019, *Introducing an integrated strategy in fault modelling with multi-attributes in 3D seismic data in a field from Persian Gulf*, Journal of the Earth and Space Physics (In Persian), Vol. 46, No.1, P. 81-96.
- ❖ Samadi, I., Soleimani Monfared, M., **Kordi, M.**, Ahmadi, M., 2019, *Introducing a strategy in recognition and simultaneous modelling of fractures with FMI logs and seismic data through reservoir zonation in a field from south of Iran*, Journal of Petroleum Geomechanics (In Persian), Vol. 3, Issue 3, P. 14-27.
- ❖ Sabahi, M., Ramazani Omali, R., **Kordi M.**, Dourandish, M., 2018, *The comparison of concentration and strike pattern of the surface and subsurface fractures in the Yortesha Anticline, a natural gas storage field in central Iran*, Journal of Geosciences (In Persian), Vol. 27, No.108, P. 125-132.
- ❖ Orak, Z., **Kordi, M.**, Karimi, A.R., 2018, *Geochemical Evaluation and organic facies distribution of the Pabdeh Formation in Northwestern coastal part of the Persian Gulf and Southern Dezful Embayment by Rock-Eval analysis*, Journal of Stratigraphy and Sedimentology Researches (In Persian), Vol. 72, No. 3, P. 37-56.
- ❖ **Kordi, M.**, Morad, S., Turner, B., Salem, A.M.K., 2017, *Sequence stratigraphic controls on formation of dolomite: Insights from the Carboniferous Um Bogma Formation, Sinai-Egypt*, Journal of Petroleum Science and Engineering- Elsevier, Vol. 149, P. 531-539.

- ❖ Lu, J., **Kordi, M.**, Hovorka, S. D., Meckel, T. A., Christopher, C. A., 2013, *Reservoir characterization and complications for trapping mechanisms at Cranfield CO₂ injection site*, International Journal of Greenhouse Gas Control- Elsevier, Vol. 18, P. 361-374.
- ❖ **Kordi, M.**, Turner, B., Salem, A. M. K., 2011, *Linking diagenesis to sequence stratigraphy in fluvial and shallow marine sandstones: Evidence from the Cambrian-Ordovician Lower Sandstone Unit in Southwestern Sinai, Egypt*, Marine and Petroleum Geology- Elsevier, Vol. 28, Issue 8, P. 1554-1571.
- ❖ Hovorka, S. D., Clift, S. J., Meckel, T. A., Treviño, R., Zeng, H., Nicot, J. P., Romanak, K. D., Smyth, R. C., Yang, C., Lu, J., Choi, j. W., **Kordi, M.**, 2011, Gulf Coast Carbon Center, Bureau of Economic Geology, David Freeman– Sandia Technologies LLC, Robert Butsch – Schlumberger Carbon Services, SECARB (Southeast Regional Carbon Sequestration Partnership) report, *Final Report for Gulf Coast Stacked-Storage Project SECARB Phase II at Cranfield*, Bureau of Economic Geology, The University of Texas at Austin, 83 P.
- ❖ Hovorka, S. D., Choi, J. W., Meckel, T. A., Trevino, R. H., Zeng, H., **Kordi, M.**, Wang, F. P. and Nicot, J. P., 2009, *Comparing carbon sequestration in an oil reservoir to sequestration in a brine formation-field study*, Energy Procedia- Elsevier, Vol. 1, Issue 1, P. 2051-2056.
- ❖ **Kordi, M.**, Bashari, A., 2003, *Clay mineral determination of the Kazhdumi Formation (Burgan sands) and their effects on reservoir properties in the Persian Gulf*, Oil and Gas Exploration and Production Journal (in Persian), Vol. 5, P. 16-17.
- ❖ **Kordi, M.**, Sohrabi, S., 2003, *Geology and extension of Sarvak Formation in Northwest of the Persian Gulf*, Iranian Offshore Oil Company internal publication (In Persian).
- ❖ **Kordi, M.**, 2001, *Petrophysical characteristics and lithofacies of the sandy tongues (Burgan) of the Kazhdumi Formation, Northwest of the Persian Gulf in view of hydrocarbon accumulation*, Iranian Offshore Oil Company internal publication (In Persian).

Presentations/Conference proceedings

- ❖ **Kordi, M.**, Fisher, W., Hovorka, S. D., Mc Bride, E., and Lu, J., 2017, *Origin of chlorite coating and its effect on reservoir quality of the Lower Tuscaloosa Sandstones at Cranfield Field, Mississippi, USA*, AAPG Annual Conference and Exhibition, Houston, Texas, USA, April 2-5, 2017.
- ❖ **Kordi, M.**, 2017, *Diagenetic chlorite forms and their effects on reservoir quality of the siliciclastic reservoirs*, 24th Symposium of Crystallography and Mineralogy of Iran, January 25-26, 2017.
- ❖ **Kordi, M.**, Turner, B., and Salem, A., 2011, *Integrating diagenesis and sequence stratigraphy for reservoir quality evolution modeling: Evidence from fluvial and shallow marine sandstones of the*

Cambrian-Ordovician successions in Southwestern Sinai, Egypt, AAPG Annual Conference and Exhibition, Houston, Texas, USA, April 10-13, 2011.

- ❖ **Kordi, M.**, Hovorka, S. D., Milliken, K. L., Treviño, R. H., and Lu, J., 2010, *Diagenesis and reservoir heterogeneity in the Lower Tuscaloosa Formation at Cranfield Field, Mississippi*, in 60th Annual Convention of the Gulf Coast Association of Geological Societies (GCAGS) and the Gulf Coast Section of SEPM, San Antonio, Texas, USA, October 10–12, 2010.
- ❖ Trevino, R. H., Ambrose, W., Meckel, T., Lu, J., **Kordi, M.**, and Zeng, H., 2009, *Sequence stratigraphy of the Tuscaloosa at Cranfield Field, Mississippi-A carbon sequestration study in an enhanced oil recovery operation*, AAPG Annual Conference and Exhibition, Denver, Colorado, USA, June 7-10, 2009.
- ❖ **Kordi, M.** and Kazemeini, S. H., 2004, *Paleosedimentary environment of the Burgan sandy tongues in the Arabian Plate*, 6th Middle East Geosciences Conference, Bahrain, GEO 2004.
- ❖ **Kordi, M.** and Bashari, A., 2001, *The Burgan reservoir distribution, Northern part of the Persian Gulf*, The 11th Oil, Gas and Petrochemical Congress, Tehran, Iran, Oct. 2001.

Awards and grants

- ❖ **Invited collaboration Research Program (ICRP)**, Ministry of Science, Research and Technology, Iran, 2023.
- ❖ **International Collaboration Research Funds**, Ministry of Science, Research and Technology, Iran, 2018.
- ❖ **Graduate Study Scholarship**, The University of Texas at Austin, USA, 2009-2013.
- ❖ **American Association of Petroleum Geologists (AAPG) Grant**, USA, 2009, 2012.
- ❖ **GDL (Structural Diagenesis Initiative) Foundation**, Outstanding Researchers Financial Aid, USA, 2011.
- ❖ **International Student and Scholar Financial Support Award**, The University of Texas at Austin, USA, 2010, 2011.
- ❖ **Visiting Scholar Grant from Bureau of Economic Geology**, The University of Texas at Austin, USA, 2008- 2009.
- ❖ **Otterborgs donation fund**, Uppsala University, Sweden, 2007.
- ❖ **Linn scholarship “Linnestipendier”**, Riksmuseivänner (National Museum Friends), Sweden, 2007.
- ❖ **NordForsk scholarship**, NordForsk, Scandinavian foundation for summer course in the Svalbard, the Arctic Ocean, Norway, June-July 2007.
- ❖ **Gavle University Summer School Grant**, Sweden, June 2006.
- ❖ **Studentship for Graduate Study**, Uppsala University, Sweden, 2006-2008.