CURRICULUM VITAE

Personal Data: Full name: Mohamed Fathy El-Amin. Date of birth: 6.12.1971. Nationality: Egyptian. Marital Status: Married. Languages: Arabic (Mother tongue), English (Good knowledge), German (Some knowledge). Current Address: Researcher Scientist, Earth Science Department, and Applied Mathematics and Computer Science Department, King Abdullah University of Science and Technology (KAUST), KSA. E-mails: mfam2000@yahoo.com, mohamed.elamin@kaust.edu.sa Cell phone No.: 00966-5444-85-177 Websites: http://scholar.google.com/citations?user=HVokqpAAAAAJ



Work Experiences at:

- 1. King Abdullah University of Science and Technology (KAUST), Saudi Arabia.
- 2. Kyushu University, Fukuoka, Japan.
- **3.** Stuttgart University, Germany.
- 4. South Valley University, Egypt.
- 5. Aswan University, Egypt.

Competitive Awards:

- 1. Two years Research Fellowship of Alexander von Humboldt Foundation (AvH), Germany.
- 2. Two years Research Fellowship of Japan Society for the Promotion of Science (JSPS), Japan.

Employment Record:

- **1.** 3.1995-10.1997, Demonstrator of Mathematics at the Mathematics Department, Aswan Faculty of Science, South Valley University, Aswan, Egypt.
- 2. 11.1997-5.2001, Assistant Lecturer at the Mathematics Department, Aswan Faculty of Science, South Valley University, Aswan, Egypt.
- **3.** 5.2001-10.2003 Assistant Professor at the Mathematics Department, Aswan Faculty of Science, South Valley University, Aswan, Egypt.
- **4.** 11.2003-10.2005, Research Fellow of Alexander von Humboldt Foundation (AvH), Institute of Thermodynamic and Heat Technology (ITW), Stuttgart University, Germany.

- **5.** 10.2005-10.2007 Associate Professor at the Mathematics Department, Aswan Faculty of Science, South Valley University, Aswan, Egypt.
- **6.** 10.2007-9.2009, Research Fellow of JSPS, Mechanical Engineering Department, Kyushu University, Japan.
- 7. 10.2009-present, Research Fellow, Applied Mathematics and Computer Science Department, King Abdullah University of Science and Technology (KAUST), KSA.

Education:

- 1. B. Sc. in Mathematics, May 1993, Aswan Faculty of Science, Assuit University, Aswan, Egypt.
- 2. M. Sc. in Differential equations, Oct. 1997, South Valley University, Aswan, Egypt.
- 3. Ph.D. in Applied Mathematics, May 2001, South Valley University, Aswan, Egypt.

Society memberships:

- 1. Member of Society of Petroleum Engineers (SPE).
- 2. Fellow of the Alexander von Humboldt Foundation (AvH), Germany.
- 3. Fellow of the Japan Society for the Promotion of Science (JSPS), Japan.
- 4. Member of Egyptian Association of Mathematics, Egypt.

Assisted Supervision of Graduate Students:

Directed Research:

Sebastian Saavedra
Spring semester, 2011, KAUST
Waqas Ahmed Khan
Spring semester, 2011, KAUST

MSc Thesis:

1)	Ardiansyah Negara	2011, KAUST
2)	Zhiwei Ma	2013, KAUST

PhD Thesis:

1)	V. Panthalookaran	2007, Stuttgart University
2)	S. Ndong-Mefane	2009, Kyushu University

Reviewer for manuscripts submitted to the journals:

- **1.** Int. J. Heat and Mass Transfer.
- **2.** Transport in Porous Media.
- **3.** Heat and Mass Transfer.
- 4. Journal of Porous Media.
- 5. Thermochimica Acta.
- 6. International Journal of Thermal Sciences.
- 7. Journal of Computational and Applied Mathematics.
- 8. International Journal of Fluid Mechanics Research.
- **9.** Numerical Heat Transfer.
- 10. Chemical Engineering Communications.
- **11.** Int. J. Hydrogen Energy.
- 12. AMSE Ser. B: Solid and Fluid Mech. and Ther. Mech. Sys.
- 13. International Journal of Heat and Fluid Flow.
- 14. Korean Journal of Applied Mathematics and Computational.
- 15. Mecanicca.
- 16. Applied Mathematics and Information Technology.
- 17. Naval Architecture and Marine Engineering.
- 18. Physica-D.
- 19. International Journal of Numerical Analysis & Modeling Series B.
- **20.** Canadian Journal of Chemical Engineering.
- **21.** International Journal of Microscale and Nanoscale Thermal and Fluid Transport Phenomena.
- **22.** ASME Journal of Heat Transfer.
- 23. Journal of Geophysics and Engineering.
- **24.** Journal of Applied Mathematics.
- 25. Journal of Energy Heat and Mass Transfer.

Project Contributions:

- "Evaluation of Sulfur Solubility in Natural Gas with Molecular Simulation", funded by Saudi Aramco Oil Company (Contract #: 6600024505; REL PO #: 6510454094; Pocket ID: 3000000121), January 15, 2011 – January 14, 2013.
- 2) "Study of Sulfur Solubility using Thermodynamics Model and Quantum Chemistry", accepted to be funded by KACST, June 15, 2011 June 14, 2012.
- 3) "Modeling Multi-Component Phase Equilibrium of Reservoir Fluids with Molecular Simulation", funded by Saudi Aramco Oil Company, (Pocket ID: 300000021; CRPO #: 6510435957), July 12, 2010 – July 11, 2012.
- 4) "Parallel Multiscale Simulation of Multicomponent Multiphase Flow: From Darcy Scale to Molecular Scale", funded by KAUST-IBM JDA Collaborative Research 2011/2012.
- 5) "Simulation of Subsurface Geochemical Transport and Carbon Sequestration", funded by KAUST UT-Austin Collaborative Research 2011/2015(Pocket ID: 3000000058).

Editorial service:

1) Guest Editor with Prof. Shuyu Sun, *Abstract and Applied Analysis*, special issue on "Mathematical and Computational Analyses of Flow and Transport Phenomena",

2013. Journal ISSN: 1110-757X, E-ISSN: 1687-0042; Journal website: http://www.hindawi.com/journals/aaa/

- Guest Editor with Prof. Shuyu Sun, *Journal of Applied Mathematics*, special issue on "Mathematical and Numerical Modeling of Flow and Transport", 2013. Journal ISSN: 1110-757X, E-ISSN: 1687-0042; Journal website: <u>http://www.hindawi.com/journals/jam/</u>
- Guest Editor with Prof. Shuyu Sun, *Journal of Applied Mathematics*, special issue on "Mathematical and Numerical Modeling of Flow and Transport", 2012. Journal ISSN: 1110-757X, E-ISSN: 1687-0042; Journal website: <u>http://www.hindawi.com/journals/jam/</u>
- 4) Editor of the book, *Mass Transfer in Multiphase Systems and its Applications*, INTECH ISBN:978-953-307-215-9 (click here)
- 5) Editor of the book, *Advanced Topics in Mass Transfer*, INTECH, ISBN: 978-953-307-333-0 (click here)
- 6) Member of editorial board of the *American Journal of Fluid Dynamics* (<u>http://journal.sapub.org/ajfd</u>).
- 7) Member of Advisory Committee, 18th Math Conference of Bangladesh Mathematics Society, Dec 2013.
- 8) *WSEAS International Conference on Heat and Mass Transfe*r, Corfu, Greece, Aug 2004.
- 9) Member of Advisory Committee, *WSEAS International Conference on Heat and Mass Transfe*r, Corfu, Greece, Aug 2004.
- 10) Member of Advisory Committee, *WSEAS International Conference on Fluid Mechanics*, Corfu, Greece, Aug 2004.
- 11) Member of Advisory Committee, *4th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics* (HEFAT 2005), Cairo, Egypt.
- 12) Member of Advisory Committee, *5th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics* (HEFAT 2007), Sun City, South Africa.
- 13) Member of Advisory Committee, *6th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics* (HEFAT 2008), Pretoria, South Africa.
- 14) Member of Advisory Committee, 7th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT 2010), 21 July 2010, Antalya, Turkey.
- 15) Member of Advisory Committee, 8th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT 2011), 11 - 13 July 2012 in Mauritius.
- 16) Member of Advisory Committee, *9th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics* (HEFAT 2012), 16 - 18 July 2012 in Malta.

Conferences and workshops:

- 1. SPE 18th Middle East Oil & Gas Show and Conference (MEOS), Bahrain, 13–15 March 2013.
- 2. International Conference on Computational Science, ICCS 2013, Barcelona, Spain, 3-5 June 2013.
- **3.** SPE Mathematical Methods in Fluid Dynamics and Simulation of Giant Oil and Gas Reservoirs, Istanbul, Turkey, 3–5 September 2012.

- 4. International Conference on Computational Science, ICCS 2012, Procedia Computer Science 9, 651–660.
- **5.** SPE Saudi Arabia Section Technical Symposium and Exhibition held in Al-Khobar, Saudi Arabia, 8–11 April 2012.
- 6. 2012 CSIM Annual Meeting, Houston, USA, Feb 9-10, 2012.
- 7. 2012 SPE Middle East Unconventional Gas Conference and Exhibition held in Abu Dhabi, UAE, 23–25 January 2012.
- **8.** 2011 SPE Reservoir Characterization and Simulation Conference and Exhibition (RCSC), scheduled 09-11 October 2011 in Abu Dhabi, UAE.
- **9.** International Conference on Computational Science (ICCS 2011), June 1-3, Singapore's Nanyang Technological University.
- SPE Saudi Arabia Section Technical Symposium and Exhibition held in Al-Khobar, Saudi Arabia, 15–18 May 2011
- **11.** International Conference on Renewable Energy (ICRE2011), 17-21 Jan 2011 Jaipur, India.
- 12. Thermal Issues in Emerging Technologies (ThETA3), Dec 19- 22 2010, Cairo, Egypt.
- 13. Inaugural CSIM Meeting, April 30, May 1-2, 2010, KAUST, Thuwal, KSA.
- 14. 10th Asian Hydrogen Energy Conference, April 8-10, 2009 Daegu, Korea.
- **15.** 15th International Conference on Finite Elements in Flow Problems (FEF09) Chuo University April 1-3, 2009, Tokyo, Japan.
- **16.** 8th World Congress on Computational Mechanics (WCCM8), June 30 July 5, 2008, Venice, Italy.
- **17.** 1st Japan-Egypt Int. Symposium on Science and Technology (EJISST2008), June 8-10, 2008, Waseda University, Tokyo, Japan.
- **18.** 2nd Joint Seminar Kyushu University Bordeaux University, "Hydrogen-Related Science, Technologies and Society" 10-11 July, 2008, Fukuoka, Japan.
- **19.** International Hydrogen Energy Development Forum, 2-3, Feb. 2008, Kyushu University, Japan.
- **20.** Japan-Korea Heat and Mass Transfer Joint Seminar, 30 Nov. 1 Dec. 2007, Fukuoka, Japan.
- **21.** The Humboldt Kolleg on the Advancement of Science and Technology in Africa, 22-24 March 2008, Assuit-Egypt.

- 22. Heat Transfer in Components and Systems for Sustainable Energy Technologies, Grenoble, France, April 5-7, 2005.
- **23.** WSEAS International Conference on Heat and Mass Transfer, Corfu, Greece, Aug. 17-19, 2004.
- 24. WSEAS International Conference on Fluid Mechanics, Corfu, Greece, Aug. 17-19, 2004.
- **25.** 2nd International Conference Basic Science and Advanced Technology, Assiut Univ., Egypt Nov. 5-8, 2000.
- **26.** 14th Meeting in Mathematics, Math. Dept., Faculty of Science, Helwan Univ., Cairo, Egypt, July 2-3, 2000.
- **27.** 6th Conference Theoretical and Applied Mechanics, Egyptian Academy of Science and Research, Cairo, March 3-4, 1999.
- **28.** Meeting of Applied Mathematics, Math. Dept., Faculty of Science, Cairo Univ., Giza, Egypt, April 22, 1999.
- **29.** International Conference on Engineering Mathematics and Physics (ICEMP), Faculty of Engineering, Cairo University, Cairo, Dec. 1997.

Keywords of Research Interests:

Computational Mathematics; Applied Mathematics; Computational Fluid Dynamics (CFD); Reservoir Simulation; Multiphase Flow in Porous Media; Lattice Boltzmann Method (LBM); Nanofluids; Hydrogen Energy Safety; Turbulent Flow; Heat and Mass Transfer; Transport in Porous Media; Heat Storage, Boundary Layer Theory; Magnetohydrodynamics (MHD); Micropolar Fluids; Non-Newtonian fluids.

Teaching Interests:

Undergraduate (Calculus – ODE – PDE – Numerical Analysis – Linear Algebra - Fluid Mechanics – Elasticity) **Postgraduate** (Numerical Analysis – CFD – Advanced Fluid Mechanics – Boundary Layer Theory)

Software and Methodologies:

Fluent, Comsol, Matlab, C Language, Fortran Language, Basic Language; Finite element method, Finite difference method, Runk-Kutta method, etc.

Experimental Skills:

Particles Imaginary Velocimetry (PIV) system.

List of Publication: Edited Books

- 1. M F El-Amin, Mass Transfer in Multiphase Systems and its Applications, INTECH ISBN:978-953-307-215-9
- 2. M F El-Amin, Advanced Topics in Mass Transfer, INTECH, ISBN: 978-953-307-333-0

Journal Papers:

- 1. M F El-Amin, A Salama, S Sun (2013), A generalized power-law scaling law for a two-Phase imbibition in a porous medium, Journal of Petroleum Science and Engineering Accepted.
- 2. M F El-Amin, Amgad Salama, Shuyu Sun (2013), Numerical and dimensional investigation of two-phase countercurrent imbibition in porous media, J. Comp. Applied Mathematics 242, 285-296.
- 3. A Salama, I Abbas, **M F El-Amin**, S Sun (2013), Comparison study between the effects of different terms contributing to viscous dissipation in saturated porous media, **Int. J. Thermal Sciences** 64, 195–203.
- 4. A Salama, S Sun, **M F El-Amin** (2013), A multipoint flux approximation of the steady-state heat conduction equation in anisotropic media, **J. Heat Transfer-ASME** 135 (041302).
- 5. **M F El-Amin**, A Salama, A A El-Amin, R S R Gorla (2013), Combined effects of thermal dispersion and variable viscosity on non-Darcy convection heat transfer in a fluid saturated porous medium. **J. Porous Media**, 16 (5): 471–482
- 6. S Sun, A Salama, **M F El-Amin** (2012), Matrix-oriented implementation for the numerical solution of the partial differential equations governing flows and transport in porous media, **Computers & Fluids** 68, 38-46.
- 7. **M F El-Amin**, Shuyu Sun (2012), Horizontal H₂-Air turbulent buoyant jet resulting from hydrogen leakage, **Int. J. Hydrogen Energy**, 37: 4. 3949-3957.
- 8. A Salama, S Sun, **M F El-Amin** (2012), An efficient IMPES-based, shifting matrix algorithm to simulate two-phase, immiscible flow in porous media with application to CO_2 sequestration in the subsurface, **SPE J** (to appear).
- 9. M F El-Amin, Amgad Salama, Shuyu Sun (2012), Effects of Gravity and Inlet Location on a Two-Phase Countercurrent Imbibition in Porous Media International Journal of Chemical Engineering 2012.
- 10. M F El-Amin, Shuyu Sun, Amgad Salama (2012), Theoretical Analysis and Semi-Analytical Solutions for a Turbulent Buoyant Hydrogen-Air Jet, Journal of Applied Mathematics 2012.

- 11. **M F El-Amin**, A Salama, S Sun, R S R Gorla (2012), Development of flow and heat transfer in the vicinity of a vertical plate embedded in porous medium with viscous dissipation effect, **Special Topics & Reviews in Porous Media**, 3: 2. 169-175.
- 12. **M F El-Amin**, Shuyu Sun, M A El-Ameen, Y A Jaha, R S R Gorla (2011), Non-Darcy free convection of power-law fluids over a two-dimensional body embedded in a porous medium, **Transport in Porous Media**, 86 (3), 965-972.
- Amgad Salama, M F El-Amin, I Abbas, Shuyu Sun (2011), On the viscous dissipation modeling of thermal fluid flow in a porous medium Archive of Applied Mechanics, 81: 1865–1876.
- 14. A J Chamkha, M F El-Amin, A M Aly (2011), Unsteady double-diffusive natural convective MHD flow along a vertical cylinder in the presence of chemical reaction, thermal radiation and Soret and Dufour effects, Journal of Naval Architecture and Marine Engineering (JNAME), 8: 1. 25-36.
- 15. **M F El-Amin**, N A Ebrahiem, Amgad Salama, Shuyu Sun (2011) Radiative mixed convection over an isothermal cone embedded in a porous Medium with variable permeability, **Journal of Applied Mathematics 2011.**
- A Negara, M F El-Amin, S Sun (2011), Simulation of CO₂ plume in porous media: consideration of capillarity and buoyancy effects, Int. J. Numer. Analys. Model. B, 2: 4. 315–337.
- 17. M F El-Amin, Shuyu Sun (2011) Effects of gravity and inlet/outlet location on a twophase co-current imbibition in porous media Journal of Applied Mathematics 2011.
- M F El-Amin, Shuyu Sun (2011), Combined effect of magnetic field and thermal dispersion on a non-Darcy mixed convection, Journal of Thermal Science, 20: 3. 276-282.
- 19. P V S N Murthy, **M F El-Amin** (2011), Thermo-diffusion effect on free convection heat and mass transfer in a thermally linearly stratified non-Darcy porous media, **The Open Transport Phenomena Journal**, 3: 49-55.
- 20. M F El-Amin, S Sun, H Kanayama (2010), Non-Boussinesq turbulent buoyant jet of a low-density gas leaks into high-density ambient, Applied Mathematics Computations, 217: 3764–3778.
- M F El-Amin, S Sun, W Heidemann, H Müller-Steinhagen (2010) Analysis of a turbulent buoyant confined jet using realizable k-ε model, Heat Mass Transfer, 46: 943-960.
- 22. M F El-Amin, A Salama, I Abbas (2010), Viscous dissipation effect on natural convection in a fluid saturated porous medium, J. Porous Media, 13: 11. 989-997.
- 23. **M F El-Amin**, H Kanayama (2009) Similarity Consideration of the buoyant jet resulting from hydrogen leakage, **Int. J. Hydrogen Energy** 34: 5803-5809

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- 24. **M F El-Amin** (2009) Non-Boussinesq turbulent buoyant jet resulting from hydrogen leakage in air **International Journal of Hydrogen Energy**, 34: 7873-7882 .
- 25. **M F El-Amin**, H Kanayama (2009) Boundary layer theory approach to the concentration layer adjacent to the ceiling wall of a hydrogen leakage: Axisymmetric impinging and far regions **International Journal of Hydrogen Energy**, 34(3): 1620-1626.
- 26. **M F El-Amin**, H Kanayama (2009) Integral solutions for selected turbulent quantities of small-scale hydrogen leakage: a non-buoyant jet or momentum-dominated buoyant jet regime **International Journal of Hydrogen Energy**, 34(3) 1607-1612.
- 27. Ibrahim Abbas, **M F El-Amin**, Amgad Salama (2009) Effect of thermal dispersion on free convection in a fluid saturated porous medium **International Journal of Heat and Fluid Flow**, 30: 2. 229-236.
- 28. Ibrahim Abbas, **M F El-Amin**, (2009) Thermal dispersion Effects on free convection in a fluid saturated porous medium **International Journal Applied Mechanics and Engineering**.
- 29. **M F El-Amin**, H Kanayama (2008) Boundary Layer Theory Approach to the Concentration Layer Adjacent to a Ceiling Wall at Impinging Region of a Hydrogen Leakage **International Journal of Hydrogen Energy** 33: 21. 6393-6400
- 30. M F El-Amin, M Inoue, H Kanayama (2008) Boundary Layer Theory Approach to the Concentration Layer Adjacent to a Ceiling Wall of a Hydrogen Leakage: Far Region International Journal of Hydrogen Energy 33: 24. 7642 – 7647
- 31. V Panthalookaran, **M F El-Amin**, W Heidemann, H Müller-Steinhagen (2008) Calibrated models for simulation of stratified hot water heat stores **International Journal of Energy Research** 32: 7. 661-676
- 32. M F El-Amin, W A Aissa, Amgad Salama (2008) Effects of Chemical Reaction and Double Dispersion on Non-Darcy Free Convection Heat and Mass Transfer Transport in Porous Media 75: 1. 93-109
- 33. S Ndong-Mefane, H Kanayama, M Ogino, M F El-Amin (2008) A Stabilization Method for the Hydrogen Diffusion Model in Materials Journal of Computational Science and Technology 2: 4. 447-458
- 34. **M F El-Amin**, Ibrahim Abbas, Rama Subba Reddy Gorla (2008) Boundary layer natural convection in a fluid saturated porous medium using finite element method **International Journal of Fluid Mechanics Research** 35: 5. 445-458
- 35. M F El-Amin, Rama Subba Reddy Gorla (2008) Unsteady free convection induced by a vertical plate embedded in a porous media International Journal of Fluid Mechanics Research 35: 5. 434-444
- 36. Ibrahim Abbas, M F El-Amin, Amgad Salama (2008) Combined effect of thermal dispersion and radiation on free convection in a fluid saturated, optically thick porous medium Forschung im Ingenierwesen (Engineering Research) 72: 3. 135-144

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- 37. M F El-Amin, Ibrahim Abbas, Rama Subba Reddy Gorla (2007) Effects of Thermal Radiation on Natural Convection in a Porous Medium International Journal of Fluid Mechanics Research 34: 2. 129-144
- 38. M F El-Amin, W A Aissa (2006) Effects of Chemical Reaction on Double Dispersion Heat and Mass Transfer in Non-Darcy Porous Media Journal of Engineering Science 34: 6. 61-72
- 39. M F El-Amin, N A Ebrahiem (2006) Effects of Viscous Dissipation on Unsteady Free Convection in a Fluid Past a Vertical Plate Immersed in a Porous Medium Transport in Porous Media 64: 1. 1-14
- 40. **M F El-Amin**, M A El-Hakiem, Rama Subba Reddy Gorla (2006) Magnetohydrodynamic Free Convection of a Large Prandtl Number Liquid Over a Nonisothermal Two-Dimensional Body **International Journal of Fluid Mechanics Research** 33: 2. 153-167
- 41. **M F El-Amin**, N A Ebrahiem, Rama Subba Reddy Gorla (2005) Heat Transfer in Magnetohydrodynamic Hiemenz Flow of a Micropolar Fluid International Journal of Fluid Mechanics Research 32: 2. 123-138
- 42. M F El-Amin, Rama Subba Reddy Gorla (2005) Non-Darcy Free Convective Heat Transfer from a Plate in a Porous Medium International Journal of Fluid Mechanics Research 32: 1. 21-38
- 43. M F El-Amin (2005) Thermal dispersion effects on non-Darcy axisymmetric free convection in a power-law fluid saturated porous medium International Journal Applied Mechanics and Engineering 10: 1. 77-86
- 44. **M F El-Amin**, A A Mohammadein (2005) Effects of Viscous Dissipation and Joule Heating on Magnetohydrodynamic Hiemenz Flow of a Micropolar Fluid **Heat Transfer Engineering** 26: 6. 75-81
- 45. **M F El-Amin** (2004) Non-Darcy Free Convection from a Vertical Plate with Time-Periodic Surface Temperature Oscillations **Journal of Porous Media** 7: 4. 331-338
- 46. **M F El-Amin** (2004) Effect of Transverse Magnetic Field on Mixed Convection in Non-Newtonian Fluids Over a Horizontal Plate with Vectored Mass Transfer **Journal of Magnetohydrodynamics, Plasma and Space Research** 11: 4. 1-15
- 47. **M F El-Amin** (2004) Combined effect of internal heat generation and magnetic field on free convection and mass transfer flow in a micropolar fluid with constant suction **Journal of Magnetism and Magnetic Materials** 270: 1-2. 130-135
- 48. **M F El-Amin**, M A El-Hakiem, M A Mansour (2004), Combined Effect of Magnetic Field and Lateral Mass Transfer on Non-Darcy Axisymmetric Free Convection in a Power-Law Fluid Saturated Porous Medium **Journal of Porous Media** 7: 1. 65-71

- 49. M F El-Amin (2004) Double dispersion effects on natural convection heat and mass transfer in non-Darcy porous medium Applied Mathematics and Computation 156: 1. 1-17
- 50. **M F El-Amin**, M A Mansour (2003), MHD effects on power-law fluids over a horizontal plate embedded in a porous medium **Journal of Magnetohydrodynamics, Plasma and Space Research** 10: 1.
- 51. **M F El-Amin** (2003) Combined effect of magnetic field and viscous dissipation on a power-law fluid over plate with variable surface heat flux embedded in a porous medium **Journal of Magnetism and Magnetic Materials** 261: 1-2. 228-237
- 52. M F El-Amin (2003) Combined effect of viscous dissipation and Joule heating on MHD forced convection over a non-isothermal horizontal cylinder embedded in a fluid saturated porous medium Journal of Magnetism and Magnetic Materials 263: 3. 337-343
- 53. **M F El-Amin**, M A El-Hakiem, M A Mansour (2003) Effects of viscous dissipation on a power-law fluid over plate embedded in a porous medium **Heat and Mass Transfer** 39: 10. 807-813
- 54. **M F El-Amin**, A A Mohammadein (2001) MHD effects on a power-law fluid past a vertical plate embedded in a porous medium with variable surface heat flux **International Journal of Applied Mechanics and Engineering** 6: 1. 117-131
- 55. M F El-Amin, A A Mohammadein (2001) MHD forced convection over a nonisothermal cylinder embedded in a fluid saturated porous medium AMSE Ser. B: Solid and Fluid Mechanics and Theoretical Mechanical Systems 70: 5. 1-12
- 56. M A El-Hakiem, **M F El-Amin** (2001) Thermal radiation effect on non-Darcy natural convection with lateral mass transfer Heat and Mass Transfer 37: 2-3. 161-165
- 57. M A El-Hakiem, **M F El-Amin** (2001) Mass transfer effects on the non-Newtonian fluids past a vertical plate embedded in a porous medium with non-uniform surface heat flux **Heat and Mass Transfer** 37: 2-3. 293-297
- 58. M F El-Amin (2001) Magnetohydrodynamic free convection and mass transfer flow in micropolar fluid with constant suction Journal of Magnetism and Magnetic Materials 234: 3. 567-574
- 59. A A Mohammadein, **M F El-Amin** (2000) Thermal radiation effects on power-law fluids over a horizontal plate embedded in a porous medium, **International Communications Heat Mass Transfer** 27: 7. 1025-1035
- 60. A A Mohammadein, **M F El-Amin** (2000), Thermal Dispersion–Radiation Effects on Non-Darcy Natural Convection in a Fluid Saturated Porous Medium, **Transport in Porous Media** 40: 2. 153-163
- 61. M A Mansour, **M F El-Amin** (1999), Thermal dispersion effects on non-Darcy axisymmetric free convection in a saturated porous medium with lateral mass transfer **International Journal of Applied Mechanics and Engineering** 4: 4. 127-137

Conference Papers:

- 62. M F El-Amin, S Sun, A Salama (2013), Enhanced oil recovery by nanoparticles injection: modeling and simulation In: 18th Middle East Oil & Gas Show and Conference (MEOS), Bahrain, 13–15 March 2013.
- 63. M F El-Amin, Amgad Salama, Shuyu Sun (2013) On the stability of the finite difference based lattice Boltzmann method In: International Conference on Computational Science, ICCS 2013, Barcelona, Spain, 3-5 June 2013.
- 64. M F El-Amin, S Sun, A Salama (2012), Modeling and simulation of nanoparticle transport in multiphase flows in porous media: CO₂ sequestration, Mathematical Methods in Fluid Dynamics and Simulation of Giant Oil and Gas Reservoirs, Istanbul, Turkey, 3–5 September 2012.
- 65. M F El-Amin, A Salama, S Sun (2012), Modeling and Simulation of Nanoparticles Transport in a Two-Phase Flow in Porous Media In: SPE International Oilfield Nanotechnology Conference and Exhibition held in Noordwijk, The Netherlands, 12–14 June 2012.
- 66. Amgad Salama, Shuyu Sun, **M F El Amin** (2012), A novel numerical approach for the solution of the problem of two-phase, immiscible flow in porous media: Application to LNAPL and DNAPL, In: **AIP Conference Proceedings-American Institute of Physics 1453, pp. 135.**
- 67. A Salama, A Azamatov, M F El-Amin, S Sun (2012) CFD investigation of flow and heat transfer of nanofluids in isoflux spirally fluted tubes In: SPE International Oilfield Nanotechnology Conference and Exhibition held in Noordwijk, The Netherlands, 12–14 June 2012.
- 68. M F El-Amin, Amgad Salama, Shuyu Sun (2012) A Conditionally Stable Scheme for a Transient Flow of a Non-Newtonian Fluid Saturating a Porous Medium In: International Conference on Computational Science, ICCS 2012, Procedia Computer Science 9, 651–660.
- 69. M F El-Amin, A Negara, A Salama, K Bao, S Sun (2012) CO₂ Injection into Oil Reservoir Associated with Structural Deformation In: 2012 SPE Saudi Arabia Section Technical Symposium and Exhibition, AlKhobar, Saudi Arabia, 8–11 April 2012.
- 70. Shuyu Sun, Amgad Salama, M F El-Amin (2012) An Equation-Type Approach for the Numerical Solution of the Partial Differential Equations Governing Transport Phenomena in Porous Media In: International Conference on Computational Science, ICCS 2012, Procedia Computer Science 9, 661–669.
- 71. M F El-Amin, A Negara, A Salama, S Sun (2012), Simulation of coupled flow and mechanical deformation using implicit pressure-displacement explicit saturation (IMPDES) scheme, In: SPE Middle East Unconventional Gas Conference and Exhibition held in Abu Dhabi, UAE, 23–25 January 2012.

- 72. Amgad Salama, Shuyu Sun, **M F El Amin** (2012), An efficient IMPES-based, shifting matrix algorithm to simulate two-phase, immiscible flow in porous media with application to CO₂ sequestration in the subsurface, In: Carbon Management Technology Conference, Orlando, Florida, USA, 7–9 February 2012.
- 73. **M F El-Amin**, Ardiansyah Negara, Amgad Salama, Shuyu Sun (2012), An algorithm for the simulation of coupled flow and mechanical deformation in porous media, **In: CSIM Annual Review Meeting Feb. 9-10, 2012, Houston, USA.**
- 74. Ardiansyah Negara, **M F El-Amin**, Shuyu Sun (2012), Reservoir simulation of CO2 injection: Importance of gravity and capillary pressure, **In: CSIM Annual Review Meeting Feb. 9-10, 2012, Houston, USA.**
- 75. Amgad Salama, **M F El-Amin**, Shuyu Sun (2012), A novel numerical approach for the simulation of transport phenomena in porous media: application to CO2 sequestration, **In: CSIM Annual Review Meeting Feb. 9-10, 2012, Houston, USA.**
- 76. M F El-Amin, S Sun (2011), Horizontal H₂-air turbulent buoyant jet resulting from hydrogen leakage, In: International Conference on Renewable Energy (ICRE2011), 17-21 Jan. 2011 Jaipur, India
- 77. S Sun, M F El-Amin (2011), A few issues in oil reservoir simulation: gravity force, scaling laws, and negative capillary pressure phenomena, 2010 CSIM Annual Meeting, Jan 13-14, 2011, Utah, USA.
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- 103. M F El-Amin, Amgad Salama, Shuyu Sun (2011) Solute transport with chemical reaction in single- and multi-phase porous media In: Mass Transfer in Multiphase Systems and its Applications Edited by: M F El-Amin. INTECH isbn: 978-953-307-215-9
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Invited Talks and Presentations:

- **3.** M F El-Amin (2013) Two-Phase Flow in Porous Media Associated with Nanoparticle Injection, IAMCS Workshop on Subsurface Modeling and Simulations, KAUST on May 12-13, 2013.
- 4. **M F El-Amin** (2012), Overview of Modeling and Simulation of Carbon Dioxide Injection/Storage, **June 13, 2012, ICES, UT-Texas.**
- 5. M F El-Amin (2012), An algorithm for the simulation of coupled flow and mechanical deformation in porous media, CSIM Annual Review Meeting Feb. 9-10, 2012, Houston, USA.
- 6. M F El-Amin (2011) Analysis and Modeling of Small-Scale Hydrogen Leakage In: International Conference on Renewable Energy (ICRE2011), 17-21 Jan. 2011 Jaipur, India.
- 7. M F El-Amin, Shuyu Sun (2010) Two-Phase Co-Current and Counter-Current Imbibition in a Porous Medium: A New Scaling Law in Terms of Characteristic Velocity, (II) Gravity Effects on Modeling, Thermal Issues in Emerging Technologies, ThETA 3, Cairo, Egypt, Dec 19 - 22, 2010.
- 8. **M F El-Amin** (2010), On the Two-Phase Imbibition in Porous Media: A New Scaling Law in Terms of Characteristic Velocity, **ErSE SEMINAR**, Sep 21, 2010, KAUST.
- 9. M F El-Amin (2010), Scaling, Analysis and computations of the two-phase countercurrent imbibition, CSIM Annual Review Meeting April 30 May 1, 2010, KAUST, KSA.
- **10.** M F El-Amin (2010), Modeling and Simulation of Structural Deformation Resulting from CO₂ Sequestration, CTPL & ARAMCO Meeting, Dec 6, 2010, KAUST, KSA.
- 11. M F El-Amin (2010), Introductory Seminar: Self Introduction and Research Topics, Group Meeting, Dec 6, 2009, KAUST, KSA.

Technical Reports:

- M F El-Amin, Shuyu Sun, A Kadoura, A salama (2012) Study of sulfur solubility using thermodynamics model and quantum chemistry, Final Report, KACST (MS-15-68), Computational Transport Phenomena Laboratory (CTPL), King Abdullah University of Science and Technology (KAUST), Feb 23, 2012.
- 2. **M F El-Amin**, et al. (2012) Simulation of Subsurface Geochemical Transport and Carbon Sequestration", funded by KAUST UT-Austin Collaborative Research 2011/2015(Pocket ID: 300000058). 2nd Report.

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- 4. **M F El-Amin**, Shuyu Sun (2012) Sulfur solubility in natural gas with molecular simulation Report No. 1 to KACST (MS-15-68) for H1-2 (1-6 month) Duration, Computational Transport Phenomena Laboratory (CTPL), King Abdullah University of Science and Technology (KAUST), Feb 23, 2012.
- 5. J Li, H Huang, M F El-Amin, S Sun (2011) Monte Carlo molecular simulation of phase equilibrium properties of reservoir fluids with emphasis to sulfur solubility in sour gas, Report No. 1 to Saudi Aramco (CRPO #: 6510454094) for Q1-2 (1-6 month) Duration of Year 1, Computational Transport Phenomena Laboratory (CTPL), King Abdullah University of Science and Technology (KAUST), July 15, 2011.
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- Chuanxiu Xu, M F El-Amin, Shuyu Sun, Gibbs Ensemble Monte Carlo Simulation of Thermodynamic Properties of Reservoir Fluids, King Abdullah University of Science and Technology (KAUST) Report No. 1 (Nov 12, 2010) Q1 Duration, Year 1 "Literature Review" SAUDI ARAMCO (CRPO #: 6510435957).
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- 9. Ardiansyah Negara, **M F El-Amin**, Shuyu Sun (2012), Reservoir simulation of CO₂ injection: Importance of gravity and capillary pressure, In: CSIM Annual Review Meeting Feb. 9-10, 2012, Houston, USA.
- 10. Amgad Salama, **M F El-Amin**, Shuyu Sun (2012), A novel numerical approach for the simulation of transport phenomena in porous media: application to CO2 sequestration, In: **CSIM Annual Review Meeting Feb. 9-10, 2012, Houston, USA.**
- 11. A Salama, S Sun, **M F El-Amin**, Simulation of CO₂ Injection in Layered Porous Media with Structural Deformation Effect, **2011 CSIM Midyear Report**.
- 12. M F El-Amin, A Negara, A Salama, S Sun, Simulation of CO₂ Injection in Layered Porous Media with Structural Deformation Effect, 2011 CSIM Midyear Report.
- 13. A Negara, **M F El-Amin**, S Sun, Modeling and Numerical Investigation of CO₂ Plume in Heterogeneous Porous Media, **2011 CSIM Midyear Report**.
- 14. **M F El-Amin**, Shuyu Sun, Effects of Gravity Force on Modeling of Co-current and Counter-current Imbibition in Porous Media, **2010 Annual CSIM Report.**

- 15. M F El-Amin, Shuyu Sun, Considering Characteristic Velocity in Scaling-law of Oil Recovery, 2010 Annual CSIM Report.
- 16. **M F El-Amin**, Shuyu Sun, Dimensional Analysis of Counter-Current Imbibition in Porous Media, **2010 Annual CSIM Report.**
- M F El-Amin, Shuyu Sun, Effects of Gravity and Inlet Location on a Two-Phase Counter-Current Imbibition in a Porous Medium, 2010 CSIM Midyear Report, pp. 137-149
- M F El-Amin, Shuyu Sun (2010) A New Scaling-Law of a Two-Phase Flow in Porous Media in Terms of Characteristic Velocity, 2010 CSIM Midyear Report, pp. 129-135