

Dr.-Ing. Ahmad Al-Zoubi

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Work Experience

August-2016	Research Associate at FMP Technology GmbH, Erlangen, Germany
2012-now	CFD and Engineering Consultant, Dresden, Germany
2006–2011	Research and Teaching Associate at Technical University of Freiberg, Institute of Thermal Engineering (IWTT), Freiberg
2003–2006	Research and Teaching Associate at Clausthal University of Technology, Institute of Applied Mechanics (ITM), Clausthal-Zellerfeld
1999- 2003	Research and Teaching Associate at Friedrich-Alexander University, Institute of Fluid Mechanics (LSTM), Erlangen-Germany
1998	Research Assistant at Jordan University of Science and Technology (JUST), Chemical Engineering Department, Jordan

Education

2001-2006	PhD in Computational Fluid Dynamics from Clausthal University of Technology (TUC), Germany Thesis: Numerical Simulation of Flow in Complex Geometries Using the Lattice Boltzmann Method. Supervisor: Prof. Dr.-Ing. habil. Gunther Brenner Grade: Very Good
1995-1997	MSc in Chemical Engineering from JUST, Jordan Thesis: Adsorption of Phenol from Aqueous Solution onto New Adsorbents Supervisor: Prof. Dr. Mousa Abu Arabi Grade: 84.2%
1990-1995	BSc in Chemical Engineering from JUST, Jordan Grade: Very good, 81.6%. Ranked: <u>Third</u> in a class of 80 students

Skills

Computational Skills

- Star-CD packages: Prostar, Proam, Star-CCM+ and Star-Design
- ANSYS-CFX, ANSYS-ICEM and ANSYS-Workbench
- ANSYS-Fluent and ANSYS-Gambit
- FASTEST: Simulates combustion process in porous media using Finite Volume Method
- OpenFoam
- Catia, Solidwork
- Tecplot, Paraview, Gnuplot, Xmgrace
- Chemkin
- Aspen-Plus
- Matlab, Octave
- Gmsh, Salome
- Palabos
- Modelica
- Programming Languages: Fortran 77/90, C++, Python
- Operating Systems: Linux and Windows

- Wrote/shared in writing the following codes:
 - DWC-code to simulate dropwise condensation process using a mechanistic approach
 - 2D poly-dispersed turbulent flow using the Euler-Euler approach
 - Lattice Boltzmann method (LBM) code to simulate flow field and energy transport in complex geometries

Languages:

- Arabic (Native language)
- English (Fluent)
- German (Middle)

Research Interests

- Gaseous Combustion
- Multiphase Flow
- Transport Properties
- Dropwise Condensation
- Lattice Boltzmann Method

Honors and Awards

- Academic achieved scholarship from the deanship of postgraduate studies, 1995-1997
- Scholarship from the Royal Sponsorship, 1990-1995
- University honor certificate (JUST), 1994
- Two faculty honor certificates (JUST), 1993 and 1994

Membership

Association of German Engineering VDI.

Industrial and Academic Projects

Sharing partially in initiating and running the following projects in cooperation with different groups from Germany and European union:

- Low-temperature heat exchangers based on thermally-conductive polymer nano-composites: Modeling and parametric study of the dropwise condensation, Funded by EU
- Optimization of Aluminum melting furnace to reduce the energy consumption by development of new refractory materials and improving the furnace geometry, Funded by the Federal Ministry of Economics BMWi
- Optimization of the thermal properties of newly developed refractory materials, Funded by the German Research Foundation DFG (SPP)
- Active und reactive functional cavities for molten metal filtration. Funded by the German Research Foundation DFG (SFB-920)
- Development of evaporative cooling system for PEM fuel cell, Funded by AiF-Germany
- Development of hydrogen cross jets porous burner for BMW company, Funded by BMW
- Design of a radiative porous burner for glass industry
- Optimization of flow distribution in a PEM fuel cell
- Investigation of the ventilation system of two traffic tunnels in Greece, Funded by Operation and Maintenance Company of Attiki Odos Motorway, Attica-Greece
- Production of ethanol from waste agricultural materials using an immobilized yeast onto a polymer in a fixed bed reactor
- Optimization of air conditioning system in TUC university building

Teaching Experience

Sharing in teaching the following courses:

- Basic and advanced fluid mechanics
- Technical combustion

- Short courses in computational fluid dynamics

Teaching Assistant, during the Master study, for the following courses:

- Heat transfer
- Thermodynamics
- Principles of chemical engineering
- Unit operation laboratory

Publications

Journal Articles

- Al-Zoubi A., Scholtissek A., Freitag J., Ray S. and Trimis D., Modeling and Simulation of Dropwise Condensation from Moist Air, under preparation.
- Zehmisch R., Demuth C., Al-Zoubi A., Mendes M., Ballani F., Ray S. and Trimis D., Numerical Prediction of Effective Thermal Conductivity of Refractory Materials: Methodology and Sensitivity Analysis. J. Ceram. Sci. Tech., 05 [02], 145-154, 2014.
- Wulf R., Mendes M. A.A., Skibina V., Al-Zoubi A., Trimis D., Ray S. and Gross U., Experimental and numerical determination of effective thermal conductivity of open cell FeCrAl-alloy metal foams. Int J. of Therm. Sci., 86, 95-103, 2014.
- Zehmisch R., Al-Zoubi A., Ray S., Trimis D., Ballani F., and Boogaart K., Numerical Determination of Effective Thermal Conductivity of Refractory Materials. Refractories Worldforum, 4, 181-186, 2012.
- Namuq M.A., Reich M. and Al-Zoubi A., Numerical simulation and modeling of a laboratory MWD mud siren pressure pulse propagation in fluid filled pipe, Oil Gas European Magazine, 38,3, 125-132, 2012.
- Al-Hamamre Z. and Al-Zoubi A., The Use Of Inert Porous Media Based Reactors For Hydrogen Production. International Journal of Hydrogen Energy, 35, 2010.
- Al-Hamamre Z., Al-Zoubi A. and Trimis D., Numerical Investigation of the Partial Oxidation Process in Porous Media Based Reformer, Combustion Theory and Modeling, Vol. 14, No. 1, 2010.
- Al-Zoubi A. and Brenner G., Simulating Fluid Flow over Sinusoidal Surfaces Using the Lattice Boltzmann Schemes. Computers and Mathematics with Applications, 56, 1365-1376, 2008.
- Brenner G., Al-Zoubi A., H. Mukinovic M. Schwarze H. and Swoboda S. Numerical Simulation of Surface Roughness Effects in Laminar Lubrication Using the Lattice Boltzmann Method. Journal of Tribology, 129, 603-610, 2007.
- Abu-Arabi M., Allawzi M. and Al-Zoubi A., Adsorption of Phenol from Aqueous Solutions on Jojoba Nuts Residue. Chem. Eng. Technol. 30 No. 4, 493-500, 2007.
- Schwarze H., Swoboda S., Brenner G., Al-Zoubi A. and Mukinovic M., Numerische Simulation von Oberflächenrauigkeitseinflüssen auf laminare Schmierfilme mit Hilfe der lattice-Boltzmann-Methode. Tribologie und Schmierungstechnik. 3, 2006.
- Brenner G. and Al-Zoubi A., Determination of Lubrication Characteristics of Bearings Using the Lattice Boltzmann Method. Proceeding of the Parallel Computational Fluid Dynamics 2005, Theory and Application. Elsevier, ISBN: 0-444-52206-9. 2005.
- Brenner G. and Al-Zoubi A., Application of the Lattice-Boltzmann Method for the Estimation of the 3D Permeability in Fabrics. Proceeding of the Parallel Computational Fluid Dynamics 2004, Theory and Application. Elsevier, ISBN: 0-444-52024-4. 2004.
- Al-Zoubi A. and Brenner G., Comparative Study of Thermal Flows with Different finite

Conference Articles

- Al-Zoubi A., Ray S., Zehmisch R., Ray S., Ballani F., and Trimis D., Numerical Determination of Effective Thermal Conductivity of Refractory Materials Using Thermal Lattice Boltzmann Method, 17. International Conference on Refractories, Prague, May 10 – 11, 2011.
- Skibina V., Mendes M., Ray S., Wulf R., Al-Zoubi A., Trimis D. and Gross U., Measurement and Numerical Evaluation of Effective Thermal Conductivity of FeCrAl-Alloy Open Cell Metal Foams. CELLMAT 2012, 7-9 November, Dresden-Germany.
- Ray S., Isleker H., Al-Zoubi A. and Trimis D., Laminar Natural Convection Heat Transfer From A Heated Cylinder In A Vertical Channel. Accepted at the 37th National and 4th International Conf. on Fluid Mech. And Fluid Power, IIT Madras, Chennai, India. 16-18 Dec., 2010.
- Stelzner B., Al-Zoubi A., Al-Sha'arawi A., Löbel C., Ray S. and Trimis D., Development of Ethanol-Fuel Porous Burner for Application in a High Temperature PEM Fuel Cell System. The 10th Conference on Energy for a Clean Environment, Portugal, 7-10 July, 2009.
- Ray S., Schulz B., Al-Zoubi A., Voss S. and Trimis D., Combined Numerical and Experimental Study on Heat Exchangers with Dimpled Channels, International Conference on Energy Engineering, India, January 2009.
- Al-Hamamre Z., Voß S., Al-Zoubi A. and Trimis D., Experimental and Numerical Investigations of the Partial Oxidation of Methane in a Porous Reactor. 9th Conference on Energy for a Clean Environment, póvoa de Varzim, Portugal, July 2007.
- Al-Hamamre Z., Voß S., Al-Zoubi A., Trimis D., Detailed Investigation of the Partial Oxidation of Methane in a Porous Reactor for Synthesis Gas Production: Experimental and Numerical Study, 23rd Deutscher Flammentag, Berlin, September 2007.
- Al-Zoubi A. and Brenner G., A New Hybrid Scheme to Simulate Thermal Flows in Porous Media Based on Lattice Boltzmann and Finite Volume Methods. International Conference on Thermal Engineering: Theory and Applications. Beirut, Lebanon, 2004.
- Al-Zoubi A., Brenner G. and Zeiser T., Numerical Study of Thermal Flows in Fixed Bed Reactors Using the Lattice Boltzmann Method. Proceedings of 3ICCHMT, 3rd International Conference on Computational Heat and Mass Transfer. Banff, Canada, 2003.
- Boukhezar N., Al-Zoubi A., Brenner G., Lehner M., Zeiser T. and Durst F., Numerical Investigation of Dispersion in 2D Model Porous Media: Comparison between Finite-Volume and Lattice-Boltzmann Methods. Proceedings of APM2002, 1st International Conference on Applications of Porous Media. Jerba, Tunisia, 2002.

Presentations

- Computational fluid dynamics for reactive flows, University of Nizwa, Oman, 15 May, 2011.
- Modeling and Simulation of the Dropwise Condensation Process, Euromech Fluid Mechanics Conference 8, Bad Reichenhall-Germany, 13-16 Sept, 2010.
- Combustion in Inert Porous Media Basic Principles, Modeling and Simulation, German-Jordanian Workshop, University of Jordan, Amman-Jordan, 14 Sept, 2009.
- Numerical Simulation of Evaporative Cooling of PEM Fuel Cell System, presented at

Institute of Thermal Engineering, TU Bergakademie Freiberg, Germany, 26 Nov, 2008.

- Computational Fluid Dynamics Using the Lattice Boltzmann Method, Virtuhcon Workshop, TU Bergakademie Freiberg, Germany 18 June, 2008.
- Simulation of Combustion Processes in Porous Media, presented at the International Summer Course: Modeling and Simulation of Technical Processes. TU Bergakademie Freiberg, Germany, 18 Sept, 2007.
- Experimental and Numerical Investigations of the Partial Oxidation of Methane in a Porous Reactor, Aachen-Freiburger-Magdeburger-Colloquium, Magdeburg-Germany, 31 August, 2007.

Referees

Available Upon Request