Europass Curriculum Vitae

Personal information

First name(s) / Surname(s)	**Menwer Attarakih**
Address(es)	Chemical Engineering Department, School of Engineering, The University of Jordan 11942, Amman, Jordan
Telephone(s)	+9962-6-5355000 Mobile: +962799617904
Fax(es)	+9962-6-5300813
E-mail	m.attarakih@ju.edu.jo, attarakih@yahoo.com
Nationality	Jordanian
Date of birth	10.09.1967
Gender	Male

Work experience

Dates	**September, 2019, 15 – Present**
Occupation or position held	Prof. of Computer-aided Chemical Process Engineering, Vice Dean for Quality Affairs & Accreditation
Main activities and responsibilities	- Preparing the quality plan for the school in cooperation and coordination with the accreditation Centre and Quality assurance and academic departments and follow up its implementation. - Follow up implementation of strategic plans and accreditation requirements for the school of engineering. - Follow up of the procedures in the accreditation of the school and its academic departments locally and internationally and determine the related needs. - Participating in the evaluation and development of study plans and academic programs in accordance with the standards of local and international accreditation. - Compile, document and provide data about the school and its staff, and keep it online and updated periodically. - Follow up and supervise the website of the school in coordination with the assistant dean for computer affairs and accreditation centre and include the basic information about the activities of the school and work to update it periodically and continuously. - Chair the Quality Assurance Committee at the school and follow up its work in terms of preparing agendas and writing the minutes of meetings and making recommendations to the dean of the School. - Preparation of the annual report of the school.
Dates	**September, 9, 2018 – September, 15, 2019**
Occupation or position held	Prof. of Computer-aided Chemical Process Engineering, Chairman of Chemical Engineering Department

Main activities and responsibilities	Responsible for general administration of the ChE department, the educational and research laboratories, staff, students and the quality and accreditation of academic programs (Preparation and finishing of the ChE program self-study report for ABET accreditation), research, strategic planning and the preparation of the annual report for the ChE department.
Name and address of employer	University of Jordan, School of Engineering 11942-Amman, Jordan
Type of business or sector	State University
Dates	**June, 2017, 1st - September, 2018**
Occupation or position held	Guest Professor, Institute of Thermal Process Engineering
Main activities and responsibilities	- Researcher on Population Balance Modelling of two-phase flow in chemical equipment such as liquid-liquid extraction columns, bubble columns, two-phase chemical reactors. - Teaching advanced courses on Modelling, Simulation and Design of Liquid-liquid extraction columns to students and to participants from the International Chemical Industries. - Writing research proposals including DFG and DAAD, developing software as well as contacting chemical industries such as BASF, NOVAERTS, SULZER, TENOVA … etc. - Conducting cooperative research with leading research institutions such as Fraunhofer Institute for Industrial and Economical Mathematics, Department of Applied Mathematics/ TU Kaiserslautern and Max Plank Institute for Complex Dynamical Systems/Magdeburg/Germany. - Delivering Workshops for the Academic and Industrial sectors: o Summer School on Liquid-Liquid Extraction organized by GVT German Organization at the University of Kaiserslautern/ Germany, September, 2017, 2018. o Advanced Population Balance Modelling of Liquid Extraction Columns using PPBLab Software: Coupled Hydrodynamics and Mass Transfer, University of Ghent, Belgium/ PBM2018 Conference.
Name and address of employer	University of Kaiserslautern, Faculty of Mechanical & Process Engineering Gottlieb-Daimler Straße, 67653 Kaiserslautern
Type of business or sector	State University
Dates	**September, 2016, 1st - June, 2017**
Occupation or position held	Vice dean for Quality Affairs and Accreditation/ School of Engineering
Main activities and responsibilities	- Preparing the quality plan for the school in cooperation and coordination with the accreditation Centre and Quality assurance and academic departments and follow up its implementation. - Follow up implementation of strategic plans and accreditation requirements for the school of engineering. - Follow up of the procedures in the accreditation of the school and its academic departments locally and internationally and determine the related needs. - Participating in the evaluation and development of study plans and academic programs in accordance with the standards of local and international accreditation. - Compile, document and provide data about the school and its staff, and keep it online and updated periodically. - Follow up and supervise the website of the school in coordination with the assistant dean for computer affairs and accreditation centre and include the basic information about the activities of the school and work to update it periodically and continuously. - Chair the Quality Assurance Committee at the school and follow up its work in terms of preparing agendas and writing the minutes of meetings and making recommendations to the dean of the School. - Preparation of the annual report of the school.
Name and address of employer	University of Jordan, School of Engineering 11942-Amman, Jordan
Type of business or sector	State University
Dates	**September, 2011, 31 – Present**
Occupation or position held	Professor of Computer-aided Chemical Process Engineering
Main activities and responsibilities	Conducting research on computer-aided process design, mathematical modelling of chemical engineering processes, teaching and supervising undergraduate and postgraduate students, participating in department and faculty committees.
Name and address of employer	University of Jordan, School of Engineering 11942-Amman, Jordan
Type of business or sector	State University
Dates	**June, 2005, 31 - August, 2017**

Occupation or position held	Guest Professor, Institute of Thermal Process Engineering
Main activities and responsibilities	Spent regular Research Visits (Summer visits) at the Institute of Process Engineering/University of Kaiserslautern/ Germany and Fraunhofer Institute for Industrial Economical Mathematics during the summer of 2005 until 2016.
Type of business or sector	State University
Dates	**September, 2009, Declined**
Occupation or position held	Researcher at transport phenomena group (Coupled CFD and Population Balances)
Main activities and responsibilities	Mathematical Modelling, Programming and Numerical Simulation of multiphase flow problems in chemical and physical processes, industrial proposal preparations, report writing and developing innovative solutions for industrial problems.
Name and address of employer	Fraunhofer Institute for Industrial and Economical Mathematics Kaiserslautern, Germany
Type of business or sector	Private Research Institution
Dates	**August, 2008, Declined**
Occupation or position held	Associate Professor of Computer-Aided Process Engineering
Main activities and responsibilities	Working at the Process Design Group, conducting research, holding workshops to teach the chemical industries, teaching and supervising undergraduate and postgraduate students.
Name and address of employer	University Technology Malaysia/ Faculty of Chemical & Natural Resources Engineering
Type of business or sector	State University
Dates	**June, 1994-September 1998**
Occupation or position held	Production Engineer & Head of glycerin refining plants
Main activities and responsibilities	A special five-year experience in erection, start-up and operation of oil splitting, fatty acids and glycerin refining plants in addition to managing utility systems (process & cooling water, steam generation and industrial waste water). Responsible for production planning and scheduling, general administration, quality assurance and control, and conducting internal audits for the ISO19001 quality and management system.
Name and address of employer	Jordan Industrial Resources Co., Amman, Jordan
Type of business or sector	Private Sector
Dates	**2006-Present**
Occupation or position held	Verified Reviewer
Main activities and responsibilities	Verified Reviewer for the Chemical Engineering Science Journal, Chemical Engineering & Processing: Process Intensification Journal, Nuclear Engineering Journal, Journal of Computational Physics, Computers & Chemical Engineering Journal, Journal of Cleaner Production, the Chemical Engineering Research and Design Journals, and many more.
Name and address of employer	Jordan Industrial Resources Co., Amman, Jordan
Type of business or sector	Private Sector
Dates	**2009-Present**
Occupation or position held	Verified Reviewer at Publons
Main activities and responsibilities	Handling and conducting papers for review
Name and address of employer	https://publons.com/
Type of business or sector	Private Sector
Dates	**2016-Present**
Occupation or position held	Editorial Board Member
Main activities and responsibilities	Handling and conducting papers for review
Name and address of employer	The Open Chemical Engineering Journal
Type of business or sector	Private Sector
Dates	**2015-Present**

Occupation or position held	Editorial Board Member
Main activities and responsibilities	Handling and conducting papers for review
Name and address of employer	Journal of Applied Engineering Science & Technology, University of Biskra, Algeria
Type of business or sector	State Sector

Education and training

Dates	**January, 2001 – June, 2004**
Title of qualification awarded	Doctor of Engineering Science /Chemical Process Engineering/ with Distinction grade/ Excellent (Auszeichnung).
Principal subjects/occupational skills covered	Thesis: Solution Methodologies for the Population Balance Equations Describing the Hydrodynamics of Liquid-liquid Extraction Contactors. Cooperation with Prof. Markus Kraft (Cambridge University/ UK), URL: http://kluedo.ub.uni-kl.de/volltexte/2004/1746
Name and type of organisation providing education and training	The University of Kaiserslautern, Faculty of Mechanical and Process Engineering/ Institute of Process Engineering/ Kaiserslautern-Germany
Dates	**Septemeber,1995 – December, 1997**
Title of qualification awarded	M.Sc. in Chemical Engineering with GPA 3.96/4, Rating: Excellent.
Principal subjects/occupational skills covered	Thesis: Dynamic Modelling of Packed Bed Glycerol-Water Distillation Column. The thesis is based on modelling industrial scale plant and is published in the Ind. Eng. Chem. Res., 40, 4857-4865, URL: http://pubs.acs.org/doi/abs/10.1021/ie000430y.
Name and type of organisation providing education and training	University of Jordan, School of Engineering 11942-Amman, Jordan
Dates	**Septemeber,1986 – December, 1988**
Title of qualification awarded	B.Sc. in Chemical Engineering
Principal subjects/occupational skills covered	The first two years of chemical engineering course work (Rating: Very Good, Ranking: third).
Name and type of organisation providing education and training	Jordan University of Science and Technology Chemical Engineering Department Irbid-Jordan
Dates	**Septemeber,1988 – December, 1993**
Title of qualification awarded	B.Sc. in Chemical Engineering
Principal subjects/occupational skills covered	The last three years of chemical engineering course work (Rating: Good).
Name and type of organisation providing education and training	The University of Jordan Chemical Engineering Department Amman-Jordan

Personal skills and competences

Mother tongue(s) **Arabic**

Other language(s)

Self-assessment	Understanding		Speaking		Writing
European level (*)	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
German	B2	B2	B1	B1	B1

Social skills and competences

- Excellent social and Communication skills with Arabic, English and German gained through my experience as student, researcher and University professor involved in intensive delivery of public speeches.
- Ability to work within a multidisciplinary team and able to deal with people from different backgrounds.
- Excellent contact and teaching skills through numerous public lecturing at local and international levels.

Organisational skills and competences

- Able to organize professional meetings, workshops mini-symposiums and gatherings.

Technical skills and competences

- Able to use wide number of programming languages and common computer operating systems.
- Shows strong affinity to computer-aided process engineering software proficiency.
- Strong proficiency in technical writing where I published hundreds of peer reviewed articles and book chapters.
- Has strong capacity for project management with high-level of data analysis skills using various statistical measures and tools.

Computer skills and competences

- Long experience with Microsoft office suite (word processor, spread sheet and powerpoint) and VISIO drawing software.
- Professional in high-level programming languages such as FORTRAN, BASIC. MATLAB, MATHCAD and MAPLE.
- Professional in using Process Simulators such as CHEMCAD and the Open-CAPE COCO Simulator.
- Professional in dealing with Computational Fluid Dynamics software such as COMSOL and the Finite Point Set software.

Artistic skills and competences

Has an ability of imagination and constructive drawings with hand on experience in preparing process flow diagrams as well as piping and instrumentation diagrams according to international standards

Other skills and competences

Writer and poet

Driving licence

I hold a Jordanian driving licence

Inventions & Developed software

- Inventor of the Sectional Quadrature Method Of Moments SQMOM (USA Patent) and the MSQMOM for discrete modelling of particulate systems.
- Invented and developed OPOSPM as a reduced population balance model which is used in the OPENFOAM Computational Fluid Dynamics (CFD) used by the open-source CFD toolkit OpenFOAM and is included in the release of OpenFOAM as multiphaseEulerFoam. Version 2.2.1. OPOSPM is used by Chemical Sciences and Engineering Division, Argonne National Laboratory, Argonne, IL 60439, USA to model centrifugal extractors to extract spent nuclear fuels.
- Invented NQMOM a stable and reduced population balance solver which is implemented in the meshfree computational fluid dynamics software (FPM) of Fraunhofer Institute for Industrial and Economic Mathematics (ITWM)/Kaiserslautern/Germany. According to Reuters 2020 ITWM is ranked the second worldwide as top institution in scientific research and number of inventions. (https://www.itwm.fraunhofer.de/en.html).
- Invented and Developed PPBLAB software, which was used by EDL-Poerner Company (http://www.edl.poerner.de/en.html) and the University of Kaiserslautern.
- Invented and Developed LLECMOD software, which was used by BASF company/ Germany and the University of Kaiserslautern/ Germany.
- Invented CDA: A Conservative Discretization Method for discrete modelling and solution of Population Balances.
- Developer of the Differential Maximum Entropy Method for solving Integral Population Balances.
- Developer of the CQMOM, which recently solved the Moment Problem in Population Balances.
- Developed SIMULINK-MATLAB software for dynamic modelling and control of gas absorption columns as well as liquid extraction columns.
- Developed Differential models for the dynamic simulation of gas adsorption using MATLAB/University of Kaiserslautern/Germany.

- Developed many steady state and dynamic flowsheet models using COCO free simulator and the commercial simulator CHEMCAD which include multicomponent glycerin distillation plants, chlorine drying, Drying oil, CO2 removal from natural gas, butyl acetate process, reactive dimethyl ether process, mono chlorobenzene process and many more.
- Developed of OPOSPM: A reduced Population Balance Model for modelling Two-phase flow systems with particular coupling to CFD software:
- FLUENT: CFD Simulation of RDC and Kuhni Extraction columns .
- FPM: CFD simulation of RDC Extraction column.
- OPENFOAM: CFD simulation of RDC and Kuhni Extraction columns.
- COMSOL: Two-Fluid Model of Bubbly flow in vertical Tubes.
- SIMULINK-MATLAB: Steady state and Dynamic Modelling of Kühni liquid Extraction Column.

Industrial experience & collaboration

- Prof. Attarakih has active projects in modelling, troubleshooting, debottlenecking, design and operation with many leading international oil and petrochemical companies which include:
- EDL Company in Leiptzeg/ Germany (http://www.edl.poerner.de/en.html).
- LANXESS/ Germany (http://lanxess.com/en/corporate/home/).
- SULZER Company/ Germany (http://www.sulzer.com/en/).
- BASF/ Germany (http://www.basf.com/group/corporate/en/).
- NOVARTIS/ Switzerland (http://www.novartis.com/).
- Prof. Attarakih Conducted many courses in Process modelling & Simulation, Process Retrofitting & Energy Integration.
- Participated in many of International Symposia and Chemical Process Industrial Conferences, which include the famous symposium: ESCAPE (European Symposium on Computer-Aided Process Engineering).
- As a Prof. of Computer-aided process design, Attarakih conducted many computer-aided design projects including gas & oil industries, vegetable oil refineries and in biochemical engineering.
- Long experience in erection, start-up and operation of chemical process plants including oil splitting, fatty acids and glycerin distillation processes.
- ProcessBuilder workshop – Advanced Process Modelling and Flowsheeting, held by the PSE The Advanced Modelling Company in Grand Hotel Bernardin/ Slovenia and organized by ESCAPE26, 15 June 2016.
- Workshop on Teaching Product and Process Design, held at the National University of Singapore by the organizers of the 11th International Symposium on Process Systems Engineering (PSE2012). The workshop was given by the editor of the Computers and Chemical Engineering Journal (Prof. Rafiq Al ghani), Prof. Warren Seider & Soemantri Widagdo, 3M Co., 20 July-2012.
- Chemical and Process Engineer/ high pressure oil and fat splitting, fatty acids & glycerin distillation: June 1993 - September 1998.
- Certified internal auditor (ISO 9000 quality management system): December 1995 - August 1998.
- Course in internal quality auditing from quality college of Scotland (a course held in Jordan, 1996).
- Training course on improved productivity through method study. organized by industrial extension services project (UNDP).
- Training course on introduction to materials management. organized by industrial extension services project (UNDP).
- Training course on supervisory skills. organized by industrial extension services project (UNDP).
- Training course on production short term scheduling tactics. organized by industrial extension services project (UNDP).

Academic experience

- Long experience in teaching: Process Design, Computer-Aided Process Design, Chemical Plant Design, Process Modelling and Simulation, Process Dynamics & Control, Process Optimization, Applied Numerical Methods in Chemical Engineering, Industrial mathematics and Water Chemistry (at bachelor and master levels).
- Frequent reviewer for the Celebrated Chemical Engineering Science Journal, Chemical Engineering Research and Design Journal, Computers & Chemical Engineering Journal and Many International Conferences (Population balance conferences, CFD for process industries, IChEAP).
- Member of the editorial board of Journal of Applied Engineering Science & Technology at Université Mohamed Khider de Biskra.
- Member of the editorial board of Journal of the Journal of Open Chemical Engineering.

- Participated in developing and improving undergraduate and graduate chemical engineering curricula.
- Head of ABET committee at the Chemical Engineering Department/University of Jordan, 20014-2016 during which I established the ABET working system and brought six-year accreditation to the ChE department.
- Supervised, numerous undergraduate projects, master and doctorial level thesis at the University of Jordan/Amman and University of Kaiserslautern/Germany.

Honors & awards

- 2005-2016: Awarded a full gest Professor research stays (three months each summer) at the Chair of Separation Sciences & Technology/ The University of Kaiserslautern/ Germany.
- 2016: Best short & poster presentation award in ICOME16 (Int. National Conference on Materials & Energy/ Larochelle University/ France) .
- 2016: Named as top 10 percent reviewer in Chemical Engineering at Publons/September, 2016.
- 2016: Awarded as an OUTSTANDING REVIEWER by the Editors of the Journal of Computational Physics published by Elsevier for his major contribution to the quality of the Journal.
- 2015: Awarded the OUTSTANDING REVIEWER Award from the Editors of the Chemical Engineering Science Journal published by Elsevier for his major contribution to the quality of the Journal.
- 2015: Invited as a keynote speaker by BCI (Bio Chemieingenieurwissenschaften/ Verfahrenstechnik), University of Kaiserslautern/Germany, June, 03.
- 2014: Invited as keynote speaker/Advanced course on Population Balance Modelling and Design of Liquid-Liquid Extraction columns by the International Solvent Extraction 2014 (ISEC2014) conference/Wuertzburg/Germany, September, 7-11, 2014.
- 2014: Awarded one-year extraordinary time for full professorship promotion by the University of Jordan due to achieving 42 points with minimum University requirements of 12 points.
- 2013: The Award of the Most Downloaded Authors for the Computers & Chemical Engineering Journal.
- 2013, 2015, 2016: The first Award of Chemical Process Design Graduation project among the Jordanian Universities, which offered by the Jordan Engineering Association.
- 2005-2016: Awarded a full gest Professor research stays at the Chair of Separation Sciences & Technology/ The University of Kaiserslautern/ Germany.
- 2011: Invited as a lead speaker on coupling population balances to CFD codes, CFD2011 conference, Trondheim/ Norway, 21 – 24 June 2011.
- 2010: Selected as a Committee member for Evaluating the best PhD Thesis in Chemical Engineering for Tiburtius Prize at the Universities of Berlin/ Germany.
- 2008: Honored with the selection as a Testimonial in the Postgraduate & Doctoral Education by the International School for Graduate Studies (ISGS) at the University of Kaiserslautern/ Germany.
- 2008: The University of Technology Malaysia (UTM)/ Faculty of Chemical and Natural Resources Engineering / Process Design Group, promoted me to Associate Professor rank in Chemical Engineering. UTM ranks the first in the ten-top Malaysian Universities for science & technology.
- 2008: My article Process intensification with reactive extraction columns appeared as the 17th in the top of the 25th hottest articles in the Chemical Engineering And Processing Journal.
- 2006: My article LLECMOD: A windows-based program for hydrodynamics simulation of liquid-liquid extraction columns appeared as the 13th in the top of the 25th hottest articles in the Chemical Engineering And Processing Journal.
- 2004: My article (co-authored with Faqir, M.): Optimal temperature policy for immobilized enzyme packed bed reactor performing reversible Michaelis-Menten kinetics using the disjoint policy. Biotechnology and Bio-engineering, 77, 163-173, was selected as the best practical research by the University of Jordan/ Amman-Jordan.
- 2000: Awarded a full five-year Grant by Al-Balqa Applied University to get my PhD in Chemical Engineer-ing/University of Kaiserslautern/Germany.
- Participated in more than 50 peer reviewed International Symposia and Conferences on Computer-Aided Process Engineering, CFD, Industrial Mathematics & Solvent Extraction (see the details on the last pages).

International Symposia Conferences & workshops

- OPOSPM: A Reduced Population ´Balance Model that Works: A Seminar Delivered at Max Planck Institute for Dynamics of Complex Technical Systems Magdeburg, January, 10, 2018, https://www.mpi-magdeburg.mpg.de/events/12554/2316
- Organized a workshop on the Advanced Population Balance Modelling of Liquid Extraction Columns using PPBlab Software: Coupled Hydrodynamics and Mass Transfer during the 6th Population Balance Modelling Conference (PBM2018), May 07-09, 2018, University of Ghent, Belgium.
- Delivered a workshop on Population Balance Modelling (PBM) and PPBLab Software at the Process and Systems Engineering Centre in Department of Chemical and Biochemical Engineering, Technical University of Denmark, 6th of March, 2018.
- Conducted an advanced course on Population Balance Modelling and Design of Liquid-Liquid Extraction columns by the International Solvent Extraction 2014 (ISEC2014) conference/ Wuertzburg/ Germany, September, 7-11, 2014.
- Conducted two workshops on coupling population balances to CFD software/ Fraunhofer Institute for Industrial Mathematics/ Germany: October 2010 & January 2011.
- Participated in ProcessBuilder workshop – Advanced Process Modelling and Flowsheeting, held by the PSE The Advanced Modelling Company in Grand Hotel Bernardin/ Slovenia and organized by ESCAPE26, 15 June 2016.
- Participated in Workshop on Teaching Product and Process Design, held at the National University of Singapore by the organizers of the 11th International Symposium on Process Systems Engineering (PSE2012). The workshop was given by the editor of the Computers and Chemical Engineering Journal (Prof. Rafiq Al ghani), Prof. Warren Seider & Soemantri Widagdo, 3M Co., 20 July-2012.
- Participated in Computer-Aided Chemical Engineering Course: Consists of advanced case studies selected from chemical engineering which were solved using ASPEN PLUSE, CEMCAD, MATHCAD, ChemSep, MATLAB and Fluent. It was a two-month course held by the Institute of Process Engineering/ University of Kaiserslautern/Germany, 2001.
- Participated in Interne Arbeitssitzung der GVC-Fachhausschuesse “Mischvorgaenge” und “Computational Fluid Dynamics”, (2003), Berlin, Germany.
- 10th European Congress on Chemical Engineering, 27 September - 01 August 2015, Nice, France
- Jahrestreffen der Fachgruppen Extraktion und Mischvorgänge, 16.-17.03.2015, Heidelberg, Germany.
- Mathematics in (Bio) Chemical Kinetics and Engineering MaCKiE, 02-03.07.2015, Ghent, Belgium.
- 24th European Symposium on Computer-Aided Process Engineering (ESCAPE24), June 15-18, 2014, Budapest, Hungary.
- 2nd International Symposium on Multiscale Multiphase Process Engineering, 24-27 September 2014, Hamburg, Germany.
- 20th International Solvent Extraction Conference 2014, 7–11 September 2014, Würzburg, Germany.
- 5th International Conference on Population Balance Modelling, Indian Institute of Science, Bangalore, India, September, 2013.
- 6th International Conference on Process System Engineering: PSE ASIA 2013, Kuala Lumpur, June, 2013.
- 83rd Annual Scientific Conference of the International Association of Applied Mathematics and Mechanics, 26-30 March, 2012, Technische Universität Darmstadt, Germany.
- The 16-th European Conference on Mathematics for Industry July 26-30, 2010 Wuppertal, Germany.
- 4th International Conference on Population Balance Modelling (2010), Berlin, Germany.
- European Symposium on Computer Aided Process Engineering-20, (2010), Ischia, Italy.
- The European Symposium on Computer Aided Process Engineering-19, (2009), Cracow, Poland.
- International Solvent Extraction Conference ISEC 2008. Tucson, Arizona, USA, 15-19 Sep. 2008.
- 6th International Conference on CFD in Oil & Gas, Metallurgical and Process Industries, SINTEF/NTNU, Trondheim Norway,10-12 June 2008.

International Symposia Conferences & workshops

- The European Symposium on Computer Aided Process Engineering-18, (2008), Lyon, France.
- Third International Conference on Population Balance Modelling, (2007), Quebec City, Canada.
- The European Symposium on Computer Aided Process Engineering-16, (2006), Garmish-Partinkirschen, Germany.
- The 8th Conference on Process Integration, Modeling and Optimization for Energy saving and Pollution Reduction, PRES' 05, Giardini di Naxos, Italy, May 15-18, 2005.
- International Solvent Extraction Conference ISEC 2005, 19-23 Sep. 2005, Beijing, China.
- The European Symposium on Computer Aided Process Engineering-15, (2005), Barcellona, Spain.
- DECHEMA/GVC – Jahrestagungen (2004), Karlsruhe, Germany.
- Second Int. Conf. on Population Balance Modelling, (2004) Valencia, Spain.
- Interne Arbeitssitzung der GVC-Fachhausschuesse “Mischvorgaenge” und “Computational Fluid Dynamics”, (2003), Berlin, Germany.
- The European Symposium on Computer Aided Process Engineering-14, (2003), Finland.
- The European Symposium on Computer Aided Process Engineering-12, (2002), Den-Hag/ The Netherlands.
- Emulsification: Modeling, Technologies and Applications, 19-21 November 2012, Lyon, France.
- CHISA: 20th International Congress of Chemical and Process Engineering, Prague, Czech Republic, 2012
- The 11th International Symposium on Process System Engineering, 15-19 July, 2012, Singapore.
- The European Symposium on Computer Aided Process Engineering-22, (2012), University College London, London.
- Workshop Mulm and ReDrop, 22-23 September 2011, AVT - Thermische Verfahrenstechnik, RWTH Aachen University, Aachen, Germany
- Aachen Conference on Computational Engineering Science ACCES, 13-15 July, 2011, Aachen, Germany.
- Treffen der Fachgruppen Extraktion und Phytoextrakte, 18-20 April 2012, Clausthal-Zellerfeld, Germany.
- ProcessNet-Jahrestagung und 30. DECHEMA-Jahrestagung der Biotechnologen 2012, 10. - 13. September 2012, Kongresszentrum Karlsruhe.
- 8th European Congress of Chemical Engineering, September 25 - 29, 2011, Berlin, Germany.
- II International Conference on Particle-based Methods: Fundamentals and Applications, PARTICLES 2011, E. Onate and D.R.J. Owen (Eds), 26-28 October 2011, Barcelona/ Spain.
- 8th International Conference on CFD in Oil & Gas, Metallurgical and Process Industries, SINTEF/NTNU, Trondheim Norway,21-23 June 2011.
- The European Symposium on Computer Aided Process Engineering-21, (2011), Chalkididki, Greece.

References

- Prof. Dipl.-Ing. Dr. techn. Hans-Jörg Bart, The University of Kaiserslautern, Institute of Process Engineering, Kaiserslautern-Germany, Tel.: +49(0)631-205-2414, E-mail: bart@mv.uni-kl.de http://www.uni-kl.de/wcms/tvt.html
- Dr. Jörg Kuhnert, Institut Techno- und Wirtschaftmathematik, Fraunhofer-Platz, 67663 Kaiserslautern/ Germany, Telefax +49 (0) 6 31/3 16 00-10 99, E-mail: kuhnert@itwm.fraunhofer.de
- Dr. Sudarshan Tiwari, The University of Kaiserslautern, Department of Mathematics, Telefon: +49 (0)631 205 4133, E-mail: Tiwari@mathematik.uni-kl.de

Publications

1. M. Attarakih & H.-J. Bart (2020). Beyond OPOSPM: A Corrected Maximum Entropy Weibull Distribution for Solving Population Balances, Computer-Aided Chemical Engineering, Elsevier, In Press.
2. Bart, H.-J., Jildeh, H., & Attarakih, M. (2020). Population Balances for Extraction Column Simulations-An Overview. Solvent Extraction and Ion Exchange, *38*, 14-65.

3. M. Attarakih & H.-J. Bart (2020). Beyond OPOSPM: A Corrected Maximum Entropy Weibull Distribution for Solving Population Balances, 30th European Symposium on Computer-Aided Process Engineering, Accepted, August 30 to 02 September 2020, Milano, Italy.
4. M. Attarakih, A. Fricke & H.-J. Bart (2020). PPBDesigner: A Population Balance Design Software for Particulate Systems, Accepted, The 14th Mediterranean Congress of Chemical Engineering (MeCCE). 01- 04, December 2020, Fira Gran Vía, Barcelona, Spain.
5. M. Attarakih, H.-J. Bart & M. Abu-Khader (2019). On the Solution of the Population Balance Equation: From Global to Local Constrained Maximum Entropy Method, Chemical Engineering Science, 209,115168, https://doi.org/10.1016/j.ces.2019.115168.
6. M. Attarakih & H.-J. Bart (2019). On the Solution of the Smoluchowski Coagulation Equation Using a Conservative Discretization Approach (CDA), Computer-Aided Chemical Engineering, 691-696.
7. J. Shafer, M. W Hlawitschka, M. Attarakih & H.-J. Bart (2019). Experimental investigation of local bubble properties – Comparison to the Sectional Quadrature Method of Moments (SQMOM), AIChE Journal, DOI: 10.1002/aic.16694..
8. J. Shafer, M. W Hlawitschka, M. Attarakih & H.-J. Bart (2019). Modelling of bubble column hydrodynamics using CFD and SQMOM as a population balance solver, Computer-Aided Chemical Engineering, 715-720.
9. M. Attarakih & H.-J. Bart (2018). Solution of the Population Balance Equation by the Meshless Moving Particle Method (MMPM), Computer-Aided Chemical Engineering, 43, 427-432.
10. S. Alzyod, M. Attarakih & H.-J. Bart (2018). CFD Modelling of Pulsed Sieve Liquid Extraction Columns using OPOSPM as a Reduced Population Balance Model: Hydrodynamics and Mass Transfer, Computer-Aided Chemical Engineering, 43, 451-456.
11. M. Attarakih & H.-J. Bart (2018). Solution of the Population Balance Equation: From Global to Local Constraint Maximum Entropy Method, Proceedings of 6th Population Balance Modelling Conference (PBM2018), May 07-09, University of Ghent, Ghent, Belgium.
12. J. Shafer, M. W Hlawitschka, M. Attarakih & H.-J. Bart (2019). Investigation of bubble size distributions in bubble column reactors using SQMOM as population balance solver, Proceedings of 6th Population Balance Modelling Conference (PBM2018), May 07-09, University of Ghent, Ghent, Belgium.
13. M. Attarakih, A. Hasseine & H.-J. Bart (2017). On the Solution of the Population Balance Equation by Orthogonal Expansion of the Maximum Entropy Functional, Computer-Aided Chemical Engineering, 40, 2053-2058.
14. M. Attarakih, S. Alzyod & A. Fricke (2017). Population Balance Modelling of pulsed packed bed extraction columns using PPBLab software, Computer-Aided Chemical Engineering, 40, 67-72.
15. S. Alzyod, M. Attarakih & H.-J. Bart (2017). CFD Modelling of pulsed sieve plate liquid extraction columns using OPOSPM as a reduced population balance model, Computer-Aided Chemical Engineering, 40, 61-66.
16. S. Alzyod, M. Attarakih, A. Hasseine & H.-J. Bart (2017). Steady state modeling of Kühni liquid extraction column using the Spatially Mixed Sectional Quadrature Method Of Moments (SM-SQMOM), Chem. Eng. Res. Design, 117C, 549-556.
17. 8. C. Korb, C., S. S. Alzyod, M. Attarakih, & H.-J. Bart (2017). SQMOM-Modellierung der Hydrodynamik in Kühni-Kolonnen bei der Reaktivextraktion, Chemie Ingenieur Technik, 89, 1-12.
18. S. S. Alzyod,, C. Korb, C., M. Attarakih, & H.-J. Bart (2017). Steady state population balance modelling of Zink extraction in a Kuhni liquid-liquid extraction column ISEC2017- The 21th International Solvent Extraction Conference. 05-09-11, Miyazaki, Japan.
19. M. Timedjeghdine , A. Hasseine, H. Binous , O. Bacha , M. Attarakih (2017). Liquid–liquid equilibrium data for water + acetic acid + solvent (dichloromethane + methyl isobutyl ketone) at T = 301.15 K, Desalination and Water Treatment, 67, 125-132.
20. S. Alzyod, M. Attarakih & H.-J. Bart (2016). Dynamic modelling of Kühni liquid extraction columns using the sectional quadrature method of moments (SQMOM), Comp. Chem. Eng., 94, 331-342.
21. S. Alzyod, M. Attarakih & H.-J. Bart (2016). The Sectional Quadrature Method of Moments (SQMOM): An extension to nonhomogeneous bivariate population balances, Chem. Eng. Res. Design, 115, Part A, 195-203.
22. M. Attarakih, A. Hasseine & H.-J. Bart (2016). CFD Modelling of Bubbly Gas Flow using Coupled OPOSPM-Two-Fluid Model, Computer-Aided Chemical Engineering, 38, 403-408.
23. M. Attarakih & H.-J. Bart (2016). CFD Modelling of Bubbly Gas Flow using Coupled OPOSPM-Two-Fluid Model, 16th European Symposium on Computer-Aided Chemical Process Engineering (ESCAPE26), June 12-15, 2016, Bernardin Congress Center, Slovenia.
24. M. Attarakih, A. Hasseine & H.-J. Bart (2016). Modelling of an RDC extraction column using the differential maximum entropy method (DMaxEntM), Proceedings of International Conference on Materials & Energy (ICOM'16), 17-20 May 2016, La Rochelle, France.
25. S. Alzyod, M. Attarakih, H-J. Bart, (2016), Detailed Modeling of an RDC liquid extraction column using the Sectional Quadrature Method Of Moments (SQMOM), proceedings of young researchers symposium (YRS), Fraunhofer verlag, Kaiserslautern, 9-14.
26. A. Hasseine, M. Attarakih, R. Belarabi and Bart H-J. (2016). On The Semi-Analytical Solution of Integro-Partial Differential Equations, Proceedings of International Conference on Materials & Energy (ICOM'16), 17-20 May 2016, La Rochelle, France.
27. S. Alzyod, M. Attarakih & H.-J. Bart (2016) Population Balance Modelling of Liquid Extraction Columns using the Sectional Quadrature Method of Moments (SQMOM), Computer-Aided Chemical Engineering, 38, 427-432.
28. S. Alzyod, M. Attarakih & H.-J. Bart (2016) Population Balance Modelling of Liquid Extraction Columns using the Sectional Quadrature Method of Moments (SQMOM), 16th European Symposium on Computer-Aided Chemical Process Engineering (ESCAPE26), June 12-15, 2016, Bernardin Congress Center, Slovenia.
29. M. Attarakih , S. Alzyod & H.-J. Bart (2016). A new population balance module for pulsed sieve plate liquid extraction column using PPBLab software, 22nd International Congress of Chemical and Process Engineering, CHISA 2016 Prague, Czech Republic, 28-31 August, 2016.
30. M. Attarakih , S. Alzyod O. Aldmour, O. Markarian & H.-J. Bart (2016). Steady state modelling and parametric optimization of drying oil process using COCO as A CAPE-OPEN flowsheet simulator, 22nd International Congress of Chemical and Process Engineering, CHISA 2016 Prague, Czech Republic, 28-31 August, 2016.

31. M. Attarakih , S. Alzyod & H.-J. Bart (2016). Steady state modelling of a Kühni liquid extraction column using the Spatially Mixed-Sectional Quadrature Method Of Moments (SM-SQMOM), 22nd International Congress of Chemical and Process Engineering, CHISA 2016 Prague, Czech Republic, 28-31 August, 2016.
32. M. Timedjeghdine, A. Hasseine, H. Binous, O. Bacha & M. Attarakih (2016). Liquid-liquid equilibrium data for water + formic acid + solvent (butyl acetate, ethyl acetate, and isoamyl alcohol) at t = 291.15 k. Fluid Phase Equilibria, 415, 51-57.
33. O. Bacha, A. Hasseine & M.Attarakih (2016). Measurement and correlation of liquid-liquid equilibria for water + ethanol + mixed solvents (dichloromethane or chloroform + diethyl ether) at t = 293.15 k. Physics and Chemistry of Liquids, 54, 1-13.
34. M Attarakih, M Hlawitschka, M Abu-Khader, S Al-Zyod, HJ Bart (2015). CFD-Population Balance Modelling and Simulation of Coupled Hydrodynamics and Mass Transfer in Liquid Extraction Columns. Applied Mathematical Modelling, 39, 5105-5120.
35. M. W Hlawitschka, M. Attarakih, S. Al-Zyod & H.-J. Bart (2015). CFD based extraction column design - Chances and challenges. Chinese Journal of Chemical Engineering, 24, 259-263, 10.1016/j.cjche.2015.07.023.
36. A. Hasseine, S. Senouci, M. Attarakih, & H. J. Bart (2015). Two analytical approaches for the solution of the population balance equations: Particle breakage process. Chemical Engineering & Technology, 38, 1574-1584.
37. M. Attarakih, Hasseine, A. and Bart, H.-J. (2015): A Meshfree Maximum Entropy Method for the Solution of the Population Balance Equation, Computer-Aided Chemical Engineering, 37, 197-202.
38. M. Attarakih, AlZyod, S. Hlawitschka, M. and Bart, H.-J. (2015): OPOSSIM: A population balance-SIMULINK module for modelling coupled hydrodynamics and mass transfer in liquid extraction equipment, Computer-Aided Chemical Engineering, 37, 257-262.
39. M. Attarakih, AL-Slaihat, F., Hlawitschka, M. and Bart, H.-J. (2015): Modelling the hydrodynamics of bubble columns using coupled OPOSPM-maximum entropy method, Computer-Aided Chemical Engineering, 37, 203-208.
40. A. Hasseinea, Z. Barhouma, M. Attarakih, H.-J. Bart (2015). Analytical solutions of the particle breakage equation by the Adomian decomposition and the variational iteration methods, Advanced Powder Technology, 26, 105-12.
41. M. Attarakih, S. S. Al-Zyod, A. Hasseine and H.-J. Bart (2015). Population Balance Modelling of Pulsed Packed Bed Extraction Column using PPBLab, 10th European Congress on Chemical Engineering, 27 September - 01 August 2015, Nice, France, ISBN , 978-2-910239-82-4.
42. Alzyod S., M. Attarakih, Dutta A., Bart H-J., (2015). The Sectional Quadrature Method Of Moments (SQMOM): An application to liquid-liquid extraction columns. Mathematics in (Bio)Chemical Kinetics and Engineering MaCKiE, 02-03.07.2015, Ghent, Belgium.
43. H. Jildeh, F. Gebauer, M. Mickler, M. Attarakih, H.-J. Bart (2015). Influence of inlet droplet size distribution on column hydrodynamics. Jahrestreffen der Fachgruppen Extraktion und Mischvorgänge, 16.-17.03.2015, Heidelberg, Germany.
44. M. Attarakih & Bart, H.-J. (2014). Solution of the population balance equation using the Differential Maximum Entropy Method (DMaxEntM): An Application to liquid extraction columns, Chemical Engineering Science, 108, 123-133.
45. M. Attarakih & H.-J. Bart (2014). A Novel MaxEnt Method for the Solution of Two-Dimensional Population Balance Equation with Particle Growth, Computer-Aided Chemical Engineering, 33, 901-906.
46. F. Gebauer, H. Jildeh, M. Attarakih, H.-J. Bart (2014). Coalescence behavior – from lab scale to pilot plant, Proc. of 2nd International Symposium on Multiscale Multiphase Process Engineering, Hamburg, Germany. CD only.
47. T. Waechtler, H. B. Jildeh, M. W. Hlawitschka, J. Kuhnert, M. Attarakih, A. Klar, H.-J. Bart (2014). A Meshfree Extraction Column FPM Simulation using the NQMOM-Population Balance Method, Computers & Chemical Engineering Journal, Under review.
48. M. W. Hlawitschka, M. M. Attarakih, S. S. Al-Zyod, H.-J. Bart (2014), Computer Aided Simulation of Liquid-liquid Extraction Columns, Proceedings of ISEC2014, 7-11-Sep. 2014, Wuerzberg, Germany.
49. H. B. Jildeh, M. Attarakih, H.-J. Bart (2014) Modelling Approach to Estimate Droplet Interaction Parameters, Proceedings of ISEC2014, 7-11-Sep. 2014, Wuerzberg, Germany.
50. Jildeh, H. B., Attarakih, M. & Bart, H.-J. (2014). Parameter optimisation and validation for droplet population balances. Canadian Journal of Chemical Engineering, 92, 2010-219.
51. Mickler, M., Jildeh, H. B., Attarakih, M. & Bart, H. J. (2014). Online monitoring, simulation and prediction of multiphase flows. Canadian Journal of Chemical Engineering, 92, 307–317.
52. M. Attarakih, Abu-Khader & Bart, H.-J. (2013). Modelling and dynamic analysis of an RDC extraction column using OPOSPM. Chemical Engineering Science,, 91, 180-196. M. Attarakih, (2013). Integral formulation of the population balance equation: Application to particulate systems with particle growth. Computers & Chemical Engineering, 48, 1-13.
53. M. Attarakih, Albaraghthi, T., Abu-Khader, M., Al-Hamamre, Z. & Bart, H.-J. (2012). Mathematical modeling of high- pressure oil-splitting reactor using a reduced population balance model. Chemical Engineering Science, 84, 276–291.
54. M. Attarakih, Abu-Khader, M. & Bart, H.-J. (2013). Dynamic analysis and control of sieve tray gas absorption column using MATALB and SIMULINK. Applied Soft Computing, 13, 1152-1169.
55. Jildeh, H. B., Attarakih, M. & Bart, H.-J. R. (2013). Droplet coalescence model optimization using a detailed population balance model for RDC extraction column. Chemical Engineering Research and Design, 91, 1317-1326.
56. M. Attarakih, M. Abu-Khader, T. Saeiq, & H.-J Bart. (2013). Ethane production plant for better energy integration and cost reduction in Jordan. Journal of Chemical Technology and Metallurgy, 48, 265-276.
57. H. Jildeh, M. Mickler, M. Attarakih and H.-J. Bart (2013). A Comparison of droplet interaction models, Chemie Ingenieur Technik 85, 1390–1391 (doi: 10.1002/cite.201250676).
58. Attarakih, M., Al-Zyod, S., Abu-Khader, M. & Bart, H. J. (2012). PPBLAB: A new multivariate population balance environment for particulate system modelling and simulation. Procedia Engineering, 42, 1574-1591.
50. Attarakih, M., Abu-Khader, M. & Bart, H. J. (2012). Synthesis and control analysis of gas absorption column using MATALB and SIMULINK, Procedia Engineering, 42, 1796–1804.
51. M. Jaradat, M. Attarakih and H.-J. Bart (2012). RDC Extraction column simulation using the Multiprimary One Secondary Particle Method: Coupled Hydrodynamics and Mass Transfer, Computers & Chemical Engineering, 37, 22-32.

52. H.B, Jildeh, Hlawitschka, M.W., Attarakih, M. & Bart, H.-J. (2012). Solution of Inverse Problem with the One Primary and One Secondary Particle Model (OPOSPM) Coupled with Computational Fluid Dynamics (CFD), Procedia Engineering, 42, 1692 1710, doi:10.1016/j.proeng.2012.07.562.
53. M. Jaradat, M. Attarakih, T. Steinmetz & H.-J. Bart (2012). LLECMOD: A bivariate Population Balance Tool for Pulsed Liquid-Liquid Extraction Columns, The Open Chemical Engineering Journal, 6, 8-31.
54. M. Jaradat, M. Attarakih & H.-J. Bart (2012). Population Balance Modeling of Pulsed (Packed and Sieve-Plate) Extraction Columns: Coupled Hydrodynamic and Mass Transfer, Ind. Eng. Chem. Res., 50,14121–14135.
55. Jildeh, H., Attarakih, M., Bart, H.J. (2012). Simulation von Extraktionskolonnen mit LLECMOD. Chemie Ingenieur Technik 84, 1282-1282.
56. Jildeh, H., Attarakih, M., Bart, H.J. (2012). Inverse Populationsbilanzen bei Extraktionskolonnen. Chemie Ingenieur Technik 84, 1228-1229.
57. M. M. Attarakih, (2010). System and method for simulating and modeling the distribution of discrete systems, United States Patent Application: US20100106467A1, April 29, 2010.
58. M. Jaradat, M. Attarakih and H.-J. Bart (2011). Advanced Prediction of Pulsed (Packed and Sieve) Extraction Column Performance using Population Balance Modeling, Chem. Eng. Res. Design J., 89, 2752–2760.
59. M. Mickler, S. Didas, M. Jaradat, M. Attarakih, H.-J. Bart (2011).Tropfenschwarmanalytik mittels Bildverarbeitung zur Simulation von Extraktionskolonnen mit Populationsbilanzen, Chem. Ing. Tech.,(83), 226-237.
60. M. Abu-Khader, O. Badran & M. Attarakih (2011). Ballast water treatment technologies: Hydrocyclonic viable option. Clean Techn. Environ. Policy (13), 403-413.
61. D. Zeidan, M. M. Attarakih, J. Kuhnert, S. Tiwari, V. Sharma, C. Drum and H.-J. Bart (2010). On a high-resolution Godunov method for a CFD-PBM coupled model of two-phase flow in liquid-liquid extraction columns. International Journal of Computational Methods, 7, 421-442.
62. C. Drumm, M. M. Attarakih, M. W. Hlawitschk and H.-J. Bart (2010). A one-group reduced population balance model for CFD simulation of a pilot-plant extraction column. Ind. Eng. Chem. Res., 49 (7), 3442–3451.
63. M. Jaradat, M. M. Attarakih and H.-J. Bart (2010): Effect of Phase Dispersion and Mass Transfer Direction on Steady State RDC Performance. Chemical Engineering Journal, 165 (2), 379-387.
64. M. Jaradat, M. Attarakih and H.-J. Bart (2010), Simulation gekoppelter Hydrodynamik und Stofftransport mittels einer Populationsbilanz, Chemie Ing. Technik, 82, pp. 1390.
65. M. Jaradat, M. Attarakih and H.-J. Bart (2009), Dynamische Simulation von Extraktionskolonnen auf der Grundlage einer multivariaten Populationsbilanz, Chem. Eng. Technol. 81, No. 8, 1061.
66. S. Tiwari, C. Drumm, M. M. Attarakih, J. Kuhnert, and H.-J. Bart, (2008). Coupling of the CFD and the Droplet population balance equation with finite poinset method. Lecture Notes in Computational Science and Engineering: Meshfree Methods for Partial Differential Equations IV, M. Griebel; M.A. Schweitzer (Eds.), Vol. 65, Springer Verlag.
67. M. M. Attarakih, C. Drumm, H.-J. Bart & N. M. Faqir, (2009). Solution of the population balance equation using the sectional quadrature method of moments (SQMOM). Chemical Engineering Science, 64, 742--752.
68. C. Drumm, M. M Attarakih and H.-J. Bart, (2009). Coupling of CFD with DPBM for an RDC extractor. Chemical Engineering Science, 64, 721 - 732.
69. M.M. Attarakih, H.-J. Bart, T. Steinmetz, M. Dietzen & N. M. Faqir (2008). LLECMOD: A Bivariate Population Balance Simulation Tool for Liquid-Liquid Extraction Columns. The Open Chemical Engineering Journal, 2, 2008, 10-34.
70. H.-J. Bart, C. Drumm & M.M. Attarakih (2008). Process Intensification of Liquid-Liquid Extraction Columns. Chemical Engineering & Processing J. (47), 745-754.
71. M. M. Attarakih, H.-J. Bart, N.M. Faqir (2006). A hybrid scheme for the solution of the bivariate spatially distributed population balance equation. Chem. Eng. Tech. J. 29,435-441.
72. C. Drumm, S. Tiwari, M.M. Attarakih, J. Kuhnert, H.-J. Bart (2008): CFD –PBM coupled model using finite pointset method and SQMOM, in: Solvent Extraction: Fundamentals to Ind. Applications, B.M. Moyer(Ed.), 1177-1182, Can. Inst. Min. Met., Montreal.
73. M. M. Attarakih, Bart, H.-J., & Faqir, N. M. (2006). Numerical solution of the bivariate population balance equation for interacting hydrodynamics and mass transfer in liquid-liquid extraction columns. Chem. Eng. Sci., 61, 113- 123.
74. Schmidt, A. S., Simon, M., Attarakih, M. M., Lagar, L. G. & Bart, H.-J. (2006). Droplet Population Balance Modelling: Hydrodynamics and Mass Transfer. Chem. Eng. Sci., 61, 246-256.
75. M. M., Attarakih, Bart, H.-J., & Faqir, N. M. (2006). LLECMOD: A windows-based program for hydrodynamics simulation of liquid-liquid extraction columns. Chem. Eng. Procc., 45, 113-123.
76. M. M. Attarakih, Bart, H. J., & Faqir, N. M. (2004). Solution of the droplet breakage equation for interacting liquid-liquid dispersions: a conservative discretization approach. Chem. Eng. Sci., 59, 2547-2565.
77. M. M. Attarakih, Bart, H.-J. & Faqir, N. M. (2004). Numerical solution of the spatially distributed population balance equation describing the hydrodynamics of interacting liquid-liquid dispersions. Chem. Eng. Sci. 59, 2567-2592.
78. M. M. Attarakih, Bart, H. J., & Faqir, N. M. (2004). Berchnung von fluessig-fluessig Extraktionskolonnen. Chem. Ing. Tech., 76, 1412-1413.
79. M. M. Attarakih, Bart, H. J., & Faqir, N. M. (2003). Optimal moving and fixed grids for the solution of discretized population balances in batch and continuous systems: droplet breakage. Chem. Eng. Sci., 58, 1251-1269.
80. Abu-Fara, D. I., Abu-Reesh, I. M. & Attarakih, M. (2003). Effect of the type of input on the periodic operation of a bioreactor with input multiplicities. Mu'tah Lil-Buhooth wad-Dirasat 18, 57-72.
81. M. M. Attarakih, Bart & Faqir, N. M. (2002). An approximate optimal moving grid technique for the solution of discretized population balances in batch systems. Computer Aided Chemical Engineering, Vol. 10, 823-828.
82. M. M. Attarakih, Abu Fara, D. & Sayed, S. (2001). Dynamic modeling of a packed-bed glycerol-water distillation column. Ind. Eng. Chem. Res., 40, 4857-4865.

83. Faqir, N.M. Attarakih, M. M. (2001). Optimal temperature policy for immobilized enzyme packed bed reactor performing reversible Michaelis-Menten kinetics using the disjoint policy. Biotechnology and Bioengineering, 77, 163-173.
84. Faqir, N.M. Attarakih, M. M. (1999). Optimum design of a series of CSTR's performing reversible Michaelis-Menten kinetics, Bioprocess Engineering, 20, 329-335.
85. M. M. Attarakih & H.-J. Bart (2012). Integral Formulation of the Smoluchowski Coagulation Equation using the Cumulative Quadrature Method of Moments (CQMOM), Computer-Aided Process Engineering, 31, 1130-1134.
86. M. M. Attarakih & H.-J. Bart (2012). On the Constrained Maximum Entropy Solution of the Population Balance Equation, Ian David Lockhart Bogle and Michael Fairweather (Editors), Proceedings of the 22nd European Symposium on Computer Aided Process Engineering, 17 - 20 June 2012, London.
87. H. B. Jildeh, Menwer Attarakih, Matthias Mickler & Hans-Jörg Bart (2012). An Online Inverse Problem for the Simulation of Extraction Columns using Population Balances, Computer Aided Process Engineering, 30, 1043–1047.
88. M. M. Attarakih, H. B. Jildeh, M. Mickler & H.J. Bart (2012). The OPOSPM as a Nonlinear Autocorrelation Population Balance Model for Dynamic Simulation of Liquid Extraction Columns, Computer-Aided Process Engineering, 31, 1216-1220.
89. H. B. Jildeh, M. M. Attarakih & H.J. Bart (2012). Coalescence Parameter Estimation in Liquid Extraction Column using OPOSPM, Computer-Aided Process Engineering, 31, 960-964.
90. M. Jaradat, Hussein, A. , Bart, H.-J. & Attarakih, M. (2012). Dynamic modelling and simulation of Kühni extraction columns, Computer Aided Chemical Engineering, 30, p.1073-1077, Jan 2012, doi:10.1016/B978-0-444-59520-1.50073-7.
91. M. M. Attarakih, M. Jaradat, M. Hlawitschkah, H.-J. Bart and J. Kuhnert (2011). Integral Formulation of the Population Balance Equation using the Cumulative Quadrature Method of Moments (CQMOM). Computer Aided Chemical Engineering, Vol. 29, pp. 81-85.
92. M. Jaradat, M. M. Attarakih, M. Hlawitschkah and H.-J. Bart (2011). Detailed Mathematical Modelling of Liquid-Liquid Extraction Columns. Computer Aided Chemical Engineering, Vol. 29, pp. 1-5.
93. M. Hlawitschkah, M. Jaradat, M. M. Attarakih, H.-J. Bart and J. Kuhnert (2011). A CFD-Population Balance Model for the Simulation of Kuehni Extraction Column. Computer Aided Chemical Engineering, Vol. 29, pp. 66-70.
94. M. M. Attarakih, M. Jaradat, C. Drumm, H.-J. Bart, S. Tiwari, V. K. Sharma, J. Kuhnert & A. Klar (2010). A multivariate sectional quadrature method of moments for the solution of the population balance equation, Computer Aided Chemical engineering, Vol., 28, pp. 1551-1556.
95. M. M. Attarakih, M. Jaradat, C. Drumm, H.-J. Bart, S. Tiwari, V. K. Sharma, J. Kuhnert & A. Klar (2009). Solution of the population balance equation using the One Primary and One Secondary particle Method (OPOSPM), Computer Aided Chemical engineering, Vol., 26, pp. 1333-1338.
96. M. M. Attarakih, M. Jaradat, C. Drumm, H.-J. Bart, S. Tiwari, V. K. Sharma, J. Kuhnert & A. Klar (2009). A multivariate population balance model for liquid extraction columns. Computer Aided Chemical engineering, Vol., 26, pp. 1339-1344.
97. V. K. Sharma, S. Tiwari, M. M. Attarakih, M. Jaradat, A. Klar, J. Kuhnert & H.-J. Bart, (2009). A meshfree CFD-PBM coupled model. Computer Aided Chemical engineering, Vol., 26, pp. 1345-1350.
98. M. M. Attarakih, H.-J. Bart, N.M. Faqir (2006). Solution of the population balance equation using the sectional quadrature method of moments (SQMOM). Computer Aided Chemical Engineering, Vol. 21, pp. 209-214.
99. M. M. Attarakih, Bart, H.-J., & Faqir, N. M. (2005). The Bivariate Spatially distributed Population Balance Equation: An Accurate Reduction Technique. Computer Aided Chemical Engineering, vol. 20, pp.163-168.
100. M. M. Attarakih, Bart, H.-J., & Faqir, N. M. (2003). Solution of the population balance equation for liquid-liquid extraction columns using a generalized fixed-pivot and central difference schemes. Computer Aided Chemical Engineering, Vol. 13, 557 – 562.
101. M. M. Attarakih, M. Jaradat, H. Allaboun, H.-J. Bart & N. M. Faqir (2008). Dynamic Modelling of a Rotating Disk Contactor Using the Primary and Secondary Particle Method (PSPM). Proc. Of the 18th European Symposium on Computer-Aided Process Engineering (ESCAPE 18),Linon/ France, June 2008
102. M. Attarakih & Bart, H.-J. (2014). A Novel MaxEnt Method for the Solution of Two-Dimensional Population Balance Equation with Particle Growth, 24th European Symposium on Computer-Aided Process Engineering (ESCAPE24), June 15-18, 2014, Budapest, Hungary.
103. M. Attarakih & Bart, H.-J. (2014). Modelling of an RDC Extraction Column using the DMaxEntM , The 8th International Chemical Engineering Congress & Exhibition (IChEC 2014), Kish, Iran, 24-27 February, 2014 .
104. M. W. Hlawitschka1, Jildeh, H. B., Attarakih, M. M., Al-Zyoud, S. & Bart, H.-J. (2014). Computer Aided Simulation of Liquid-liquid Extraction Columns , 20th International Solvent Extraction Conference 2014, 7–11 September 2014, Würzburg, Germany.
105. M. Attarakih, Hlawitschka, M. W., Al-Zyod, S., Abu-Khader, M., Bart, H.-J (2013). A Hyperbolic Population Balance Model for Dynamic Analysis of Liquid Extraction Columns, Proceedings of the 6th International Conference on Process Systems Engineering (PSE ASIA) 25 - 27 June 2013, Kuala Lumpur.
106. M. Attarakih & Bart, H.-J. (2013). On the Constrained Maximum Entropy Solution of the Bivariate Population Balance Equation for Liquid Extraction Columns, Proceedings of the 5th International Conference on Population Balance Modelling, 11-13 Sep., Bangalore, India.
107. H. Jildeh, M. Mickler, M. Attarakih and H.-J. Bart (2013). A Comparison of Droplet Interaction Models, Jahrestreffen derFachgemeinschaft Fluiddynamik und Trenntechnik, 25-27 September 2013, Vogel Convention Center, Würzburg, Germany.
108. H.-J. Bart, Hlawitschka, M. W. & Attarakih, M. & (2013). Mass transfer and Population Balance Modeling using 3D-CFD, Proceedings of the 5th International Conference on Population Balance Modelling, 11-13 Sep., Bangalore, India.
109. H. B. Jildeh, M. Attarakih and H.-J. Bart (2013). Modelling and Simulating of Liquid Extraction Columns using Optimized Droplet Interaction Models, 9th European Congress of Chemical Engineering (ECCE 2013), 21-25 April 2013, Hague, Netherlands.
110. H. B. Jildeh, M. W. Hlawitschka, M. Attarakih and H.-J. Bart (2012). Solution of inverse problem with the one primary and one secondary particle model (OPOSPM) coupled with computational fluid dynamics (CFD), 20th International Congress of Chemical and Process Engineering Proceeding, 25-29 August 2012, Prague, Czech Republic.

111. Attarakih, M., Abu-Khader, M. & Bart, H. J. (2012). Synthesis and control analysis of gas absorption column using MATALB and SIMULINK, 20th International Congress of Chemical and Process Engineering Proceeding, 25-29 August 2012, Prague, Czech Republic.
112. T. Wächtler, J. Kuhnert, M. Attarakih & Axel Klar (2012). Counting Droplets: A solver for the droplet population balance equation, 83rd Annual Scientific Conference of the International Association of Applied Mathematics and Mechanics, 26-30 March, 2012, Technische Universität Darmstadt, Germany.
113. T. Wächtler, J. Kuhnert , M. M. Attarakih, S. Tiwari, A. Klar & H.-J. Bart (2011). The Normalized Quadrature Method Of Moments coupled with Finite Pointset method, II International Conference on Particle-based Methods: Fundamentals and Applications, PARTICLES 2011, E. Onate and D.R.J. Owen (Eds), 26-28 October, Barcelona/ Spain, http://congress.cimne.com/particles2011/proceedings/full/p100.pdf
114. M. M. Attarakih, J. Kuhnert ,T. Wächtler, M. Abu-Khader, H.-J. Bart (2011). Solution Of The Population Balance Equation Using The Normalized QMOM (NQMOM), Proc. of the 8th International Conference on CFD in Oil & Gas, Metallurgical and Process Industries SINTEF/NTNU, Trondheim, Norway,21-23 June 2011.
115. T. Wächtler, J. Kuhnert , M. M. Attarakih, S. Tiwari, A. Klar & H.-J. Bart (2011). The Normalized Quadrature Method Of Moments coupled with Finite Pointset method, II International Conference on Particle-based Methods: Fundamentals and Applications, PARTICLES 2011, E. Onate and D.R.J. Owen (Eds), 26-28 October, Barcelona/ Spain, http://congress.cimne.com/particles2011/proceedings/full/p100.pdf
116. M. M. Attarakih, J. Kuhnert ,T. Wächtler, M. Abu-Khader, H.-J. Bart (2011). Solution of The Population Balance Equation Using The Normalized QMOM (NQMOM), Proc. of the 8th International Conference on CFD in Oil & Gas, Metallurgical and Process Industries SINTEF/NTNU, Trondheim, Norway,21-23 June 2011.
117. M. Jaradat, M. Attarakih and H.-J. Bart (2011). Advanced Prediction of Pulsed Extraction Column Performance using LLECMOD, (CM)2-Young Researcher Symposium Proceedings: 22-27, 15 February 2011, Kaiserslautern-Deutschland.
118. H. B. Jildeh, M. Attarakih and H.-J. Bart (2011). An Inverse Problem Method for RDC Simulation, (CM)2-Young Researcher Symposium Proceedings: 45-49, 15 February 2011, Kaiserslautern-Deutschland.
119. M. M. Attarakih, M. Jaradat, M. Hlawitschkah, H.-J. Bart and J. Kuhnert (2010). Solution of the population balance equation using the Cumulative Quadrature Method Of Moments (CQMOM). 4th International Conference on Population Balance Modelling hosted by the Max Plank Institute for Dynamics of Complex Technical Systems, 15-17.09.2010, Berlin, Germany.
120. J. Kuhnert, M. Attarakih, S. Tiwari, M. Hlawitschka, H.-J. Bart(2010). Finite Pointset Method (FPM): Meshfree numerical solution of Population Balance Equations, The 16-th European Conference on Mathematics for Industry, July 26-30, 2010 Wuppertal, Germany.
121. V. K. Sharma, S. Tiwari, M. M. Attarakih, M. Jaradat, A. Klar, J. Kuhnert & H.-J. Bart, (2010). A spatially meshfree population balance model for the simulation of liquid extraction columns. 4th International Conference on Population Balance Modelling hosted by the Max Plank Institute for Dynamics of Complex Technical Systems, 15-17.09.2010, Berlin, Germany.
122. M. Jaradat, M. Attarakih, M. Hlawitschka and H.-J. Bart (2010). A multivariate population balance model for liquid extraction columns. 4th International Conference on Population Balance Modelling hosted by the Max Plank Institute for Dynamics of Complex Technical Systems, 15-17.09.2010, Berlin, Germany.
123. .M. W. Hlawitschka, C. Drumm, M. M. Attarakih, H.-J. Bart (2010). Simulation of a Kühni extraction column using a CFD and population balance model. 4th International Conference on Population Balance Modelling hosted by the Max Plank Institute for Dynamics of Complex Technical Systems, 15-17.09.2010, Berlin, Germany.
124. M. M. Attarakih, H. Allaboun, C. Drumm, H.-J. Bart, S. Tiwari & J. Kuhnert (2008). Dynamic Modelling of Liquid-Liquid Extraction Columns using the Direct Primary Secondary Particle Method (DPSPM). Proc. of the 6th International Conference on CFD in Oil & Gas, Metallurgical and Process Industries, SINTEF/NTNU, Trondheim Norway,10-12 June 2008.
125. S. Tiwari, C. Drumm, V. K. Sharma, J. Kuhnert, M. Attarakih, A. Klar and H.-J., Bart (2008). A Meshfree CFD-Population Balance Equation Coupled Model, Proc. Of the 6th International Conference on CFD in Oil & Gas, Metallurgical and Process Industries, SINTEF/NTNU, Trondheim Norway,10-12 June 2008.
126. C. Drumm, M., Attarakih, S., Tiwari, J.,Kuhnert, & H.-J., Bart (2008). Implementation of the Sectional Quadrature Method of Moments in a CFD code. Proceedings of the 6th International Conference on CFD in Oil & Gas, Metallurgical and Process Industries, SINTEF/NTNU, Trondheim Norway,10-12 June 2008.
127. C. Drumm, S. Tiwari, M. M. Attarakih, J. Kuhnert, and H.-J. Bart, (2008). CFD-PBM coupled model using the finite pointset method and the SQMOM. Proc. of ISEC 2008 conference. Tucson, Arizona, USA, 15-19 Sep. 2008, pp. 1177 – 1182.
128. Steinmetz, T., Schmidt, S., Attarakih, M. & H.-J. Bart (2005). Droplet Population Balancing for Column Simulation. International Solvent Extraction Conference, Proc. Of ISEC '05, CD-ROM (ISBN 7-900692-02-9), China Acad. J. Electronic Publ. House, www.isec2005.org.ch.
129. Bart, H-J., Schmidt, S. & Attarakih, M. (2005) Advanced Column Modelling for Reactive Extraction. The 8th conference on Process Integration, Modelling and Optimization for Energy Saving and Polution Reduction. Klemes, J. (Ed). Chemical Engineering Transactions (7), 297-302.
130. M. M. M.Attarakih, Bart, H. J., & Faqir, N. M. (2004). Berchnung von fluessig-fluessig Extraktionskolonnen auf Basis bivarianter Populationsbilanzen. DECHEMA/GVC – Jahrestagungen, 12-14 Oktober 2004, Karlsruhe, Duetchland.
131. M. M. Attarakih, H.-J. Bart, N.M. Faqir (2004). Numerical solution of the bivariate population balance equation for interacting hydrodynamics and mass transfer in liquid-liquid extraction columns. Proc. Of the 2nd Int. Conf. on Population Balance Modelling, 5./7.5.2004, Valencia, Spain, 94-97, J. Nopoens, K. Malisse, C.A. Biggs, J.J. Dcoste (eds.) EUROSIS, Ghent, Belgium.
132. S.A. Schmidt, M. Simon, M. M. Attarakih, L. Lagar Garcia, H.-J. Bart (2004). Estimation of Populance Parameters in Liquid-Liquid Extraction Column. Proc. Of the 2nd Int. Conf. on Population Balance Modelling, 5./7.5.2004, Valencia, Spain,55-58, J. Nopoens, K. Malisse, C.A. Biggs, J. J. Dcoste (eds.) EUROSIS, Ghent, Begium.

133. M. M. Attarakih, C. Drumm, H.-J. Bart & N. M. Faqir. (2007). Solution of the population balance equation using the sectional quadrature method of moments. Proc. Of the 3rd International Conference on Population Balance Modelling, Quebec, Canada, 19-21 Sep. 2007.