

JOACHIM (Jochen) PETERSEN



CURRICULUM VITAE: January 2019

PERSONAL INFORMATION

Date of Birth 8 June 1966

Nationality German, SA permanent resident (ID 6606085091187)

Office Address: Department of Chemical Engineering
University of Cape Town
Private Bag X3
RONDEBOSCH 7701
Tel.: 021 650 5766
Email: jochen.petersen@uct.ac.za

QUALIFICATIONS

Mar 1993 - Jun 1998 PhD in Chemical Engineering from the University of Cape Town, South Africa;
Thesis Title: "Assessment and Modelling of Chromium Release from Minerals Processing Waste Deposits" Supervisor: Professor James G. Petrie

Feb 1990 - Nov 1992 BSc (Hons) in Chemical Engineering from the University of the Witwatersrand, Johannesburg, South Africa

Oct 1985 – Mar 1988 Vordiplom (2nd year pass certificate) Chemical Engineering at Technische Hochschule Karlsruhe, Germany

Jun 1985 Abitur ("A-Level" High School Leaving Certificate) in Karlsruhe, Germany

PROFESSIONAL HISTORY

Jan 2016 - present Professor – Department of Chemical Engineering, University of Cape Town

Jan 2012 - Dec 2015 Associate Professor – Department of Chemical Engineering, University of Cape Town

Jul 2008 - Dec 2011 Senior Lecturer – Department of Chemical Engineering, University of Cape Town

Jul 2002 – Jun 2008 Senior Research Officer – Bioprocess Engineering Research Unit, Department of Chemical Engineering, University of Cape Town, South Africa

- research into biooxidation kinetics in heap and tank leach systems
- modelling of heap systems
- teaching and research in general hydrometallurgy

Jan 2000 – Jun 2002 Research Associate – Biohydrometallurgy Group, Department of Metals and Materials Engineering, University of British Columbia, Vancouver, Canada

- research into the thermophilic bio-leaching of chalcopyrite
- experimental study of the dynamics bio-heap leaching of a chalcocite ore
- development of a computer model of heap leach processes

Jul 1998 – Dec 1999 Post-doctoral Fellow/ Research Officer – Environmental Process Engineering Group, University of Cape Town, South Africa

- research into atmospheric oxidation of chromium in stainless steel wastes
- research into vanadium recovery from spent catalysts

Mar 1988 – Dec 1989 Student Researcher – Gold Exploitation Laboratory, Chamber of Mines Research Organization, Johannesburg, South Africa

SCHOLARLY AND PROFESSIONAL ACTIVITIES

- Editor-in-Chief of Hydrometallurgy (since 2013; Associate Editor 2010-2012; member of Editorial Board since 2007)
- Invited Keynote Speaker and Lectures: IBS 2009, Bariloche, Argentina; IC-LGO Jamshedpur, India, 2015; Kunming University of Technology, China, 2017; Chemeca 2017, Melbourne, Australia (2017); IBS 2017, Freiberg, Germany; Copper 2019, Vancouver, Canada; IBS2019, Japan;
- Member International Committee International Biohydrometallurgy Symposium (IBS) since 2003;
- Member on Organising Committees: IBS2005, Cape Town 2005; Percolation Leaching 2011 (SAIMM, Muldersdrift); Enviromine 2011 & 2013 (Santiago, Chile); Cu-Co Afrika 2015, 2018 (SAIMM, Zambia); Hydrometallurgy 2016 (SAIMM, Cape Town); Hydrometallurgy Symposium in Extraction 2018 (CIM, Canada); Copper Hydrometallurgy Symposium in Copper/Cobre 2019 (CIM, Canada)
- Member SAIMM, member of Western Cape Branch Committee, Chairman 2012/13
- Course convenor (2008-2012): MSc Program in Hydrometallurgical Engineering by coursework and half thesis, delivered by Prof Nicol of Murdoch University and Prof Dreisinger of UBC and various UCT lecturers; 16 graduates
- Short Courses: Introduction to Hydrometallurgy, Anglo-Platinum AGDP (2005-2015); Biohydrometallurgy, Changsha, China, 2011; Heap Leaching Fundamentals at Percolation Leaching, Muldersdrift, South Africa, 2011; Heap Leaching, BHP Billiton and UCN, Iquique and Antofagasta, Chile, 2012; Heap and Bioleaching, at Hydrometallurgy '14, Victoria, Canada, 2014; Heap Leaching – Principles and Practice, Bergakademie Freiberg University, Germany, Mar 2016; Iron Control Issue in Heap Leaching at IMPC/COM 2016, Quebec City, Canada; Theory and Practice of Copper Heap Leaching at Copper/Cobre 2019, Vancouver, Canada

KEY ACADEMIC ROLES AND COLLABORATIONS

Senior Leadership Roles: NRF SARChI Chair in Minerals Beneficiation at UCT since 1 October 2018 (and interim in 2015 and 2018); Director of Postgraduate Studies, Department of Chemical Engineering, UCT (2016-2018)

Honorary Appointments: Visiting Professor: Central South University, Changsha (2011-2016; 2018 onwards); Kunming University of Technology, China (2017 onwards); Adjunct Professor: RMIT University, Melbourne (2017-2019);

Research Collaborations:

- European rare earth projects: SoS-RARE/University of Leeds and R⁴SEM²/Helmholtz Institute Freiberg (HIF) (2015-present): Research projects in the area of rare earth in-situ leaching from ion adsorption clays
- Minerals to Metals Research Initiative, UCT (2008-present): Research projects in the area of sustainable mineral & metal resource extraction – low energy comminution, low grade ore processing, urban mining
- Centre for Bioprocess Engineering Research, UCT (2008-2016): Research projects in the area of heap bioleaching

KEY INDUSTRIAL COLLABORATIONS

Rio Tinto plc (2017 – 2018): Evaluation and modelling of gas transport and uptake during heap bioleaching of chalcopyrite-rich copper ores. Collaboration with RMIT University.

Mine Reclamation Corporation (Korea) (2015-2016): Exploration of a bioleaching process for the extraction of As from Korean mine tailings (jointly with Chonbuk University, South Korea and CeBER, UCT);

Lonmin plc (2010-2015): Development of a combined heap bioleach/heap cyanidation process for the recovery of base metals and PGM values from a PGM bearing ore – pre-feasibility bench-scale studies leading to a patent on a novel process;

BHP-Billiton (2008-2012): ‘Project cpy’ – major research project at UCT on biohydrometallurgy of copper heap leaching; simultaneously advisor on technology development around the heap bio leaching of predominantly chalcopyrite ores using thermophile micro-organisms up to demonstration scale (test heap at Escondida, Chile) and analysis of biologically assisted heap and dump leaching of low grade copper sulphide ores at industrial scale.

Anglo American Platinum (2008-2014): supervisor of various industry based MSc projects around base metal and precious metal refineries – e.g. zinc removal from Ni leach liquors (Ion exchange plant built and operational) and improvement of Ru sponge quality by sharper Os separation (plant operational improvements implemented)

Australian Minerals Industry Research Association (AMIRA) project P768 (2004-2006): Improving Heap Bioleaching – conceptual studies around bioleaching microbiology, bench-scale leach testing, monitoring of industrial heap operations at pilot and operational scale.

Teck Cominco Inc., Canada (2001-2002): Assessment and modelling of Zn heap bioleach operation within the Z2K project operating in British Columbia, Canada

Placer Dome Inc (2000-2002): Comprehensive test work program to quantify and model the heap (bio)leaching of Cu from the Zaldivar (Chile)ore body – leading to the development of the HeapSim modelling code.

SUMMARY: Research

- **Fundamental:** Originating from my PhD, which was focussed on assessment and modelling of chromium release from stainless steel smelter wastes, my research interest has always followed a dual approach using extensive experimental characterisation of reaction and transport phenomena during the leaching of minerals and the mathematical modelling of these phenomena with a view to optimising the reaction conditions for most efficient extraction. For many years this was focussed on heap leach processes especially the bioleaching of sulphide minerals. During my post-doctoral years at the University of British Columbia I developed, together with Prof David Dixon, the HeapSim modelling tool in parallel with an extensive assessment strategy to characterise bioleaching from a particular ore sample. This foundation informed further research for many years, expanding the approach to copper, zinc and nickel sulphide bioleaching as well as Au and PGM cyanide leaching in terms of mineral types, accompanied with more fundamental studies on , bioleaching kinetics, gas-liquid mass transfer, inner particle diffusion-reaction phenomena and solute transport in the heap context. More recently my focus has expanded to non-biological leaching, especially ammonia for copper and nickel leaching, as well as cyanide, thiocyanate and iodine for gold and PGM leaching. The focus on heap leaching and the associated modelling has expanded to include in-situ leaching and tools for predicting non-ideal solution flow phenomena. A recent new direction includes modelling of ion-exchange processes, both in resins and REE adsorption clays, again through a combination of reaction and transport phenomena.
- **Application:** I believe as an engineer it is imperative to not lose touch with the industrial application of the fundamental knowledge generated through research. The heap modelling work originated from specific industrial operations in Chile and has been applied in various contexts there, the work on Zn heap bioleaching has been evaluated for a South African ore body and a dual heap leach process for treating a PGM ore has been developed and patented in collaboration with a South African PGM miner. Continued interest exists to use heap and in-situ leach processes for treating low-grade ores (especial of chalcopyrite), waste and tailings materials and even electronic waste. I am also putting a stronger emphasis on evaluating extractive technology in the broader socio-economic context, both locally and globally in terms of commodity cycles.

PUBLICATION RECORD (1998 TO PRESENT)

in peer reviewed journals:	57
in peer reviewed conference proceedings:	56
book chapters:	4
patents:	2

(see complete list of publications appended)

POSTGRADUATE STUDENT SUPERVISION (2004 TO PRESENT)

	current	graduated
PhD	6	5
PhD (co-supervision)	1	-
MSc (full time)	7 (+3 new)	16
MSc (part time)	-	17
MSc (co-supervision)	1 (new)	6

POSTGRADUATE STUDENT RECORD

PhD students

Name:	Supervisor(s):	Year/date of registration:
Uys, Nicole	J. Petersen/M. Becker	Jun 2018 - present
Beiza Lazcano, Luis	J. Petersen	Jan 2017 - present
Shaik, Kathija	J. Petersen	Jan 2017 - present
Mangunda, Cledwyn	A.Lewis/J. Petersen (co-superv.)	Jan 2015 - present
Van Staden, Petrus	J. Petersen/ Mintek/S. Harrison	Jan 2015 – Jan 2019*
Goso, Xolisa	J. Petersen / Mintek	Jan 2013 – Jan 2019*
Cherkaev, Alexey	J. Petersen / S. Harrison	Jan 2011 – Jan 2019*
Nesbitt, Allan	J. Petersen	Jul 2009 – May 2017
Moyo, Thandazile	J. Petersen / M. Nicol	Sep 2011 - Dec 2016
Mwase, James	J. Petersen	Jan 2012 – Dec 2016
Ghorbani, Yousef	J. Petersen/ M. Becker/ A. Mainza	Jan 2009 – Dec 2012
Ojumu, Tunde	J. Petersen/ G. Hansford	Jun 2004 – Jun 2008

- These students have submitted

Masters students

Name:	Supervisor(s):	Year/date of registration:
Maharaj, Dasmi	J. Petersen/T. Moyo	Jan 2019 – present
Archippe Manzila	J. Petersen	Jan 2019 – present
Chad Naude	J. Petersen/M. Becker	Jan 2019 - present
Gibson, Borbor	J. Petersen	Apr 2018 – present
Prestele,Patrick	J. Petersen, M. Becker	Feb 2018 – present
Dinga, Jordy	J. Petersen	Mar 2017 – present
Chirume, Blessing	J. Petersen/ D. Bradshaw/T Moyo	Jan 2017 – Jan 2019*

Mkhize, Sfiso	J. Petersen	Jan 2017 – present
Burcher-Jones, Cody	J. Petersen	Jan 2016 – Dec 2018
Mgabhi, Senzo	J. Petersen	Jan 2016 – Jan 2019*
Sadan, Zaynab	J. Petersen/ D. Bradshaw/T. Moyo	Jan 2016 – Jan 2019*
Ahmed, Uwais	SKK Monazite/ J. Petersen	Jan 2016 – Dec 2017
Manana, Buhle	J. Petersen	Jan 2015 – Jun 2017
Taggard, Diane	J. Petersen	Jul 2005 – Dec 2016
Shaik, Kathija	J. Petersen	Jan 2014 – Jun 2016
Ncongwane, Mpendulo	J. Broadhurst/ J. Petersen (co-supv.)	Jan 2014 – Jun 2016
Dlamini, Zethu	J. Petersen	Jan 2013 – Jun 2015
Musonda, Kabwe	J. Petersen	Jan 2013 – Jun 2015
Senoko, Mamhlomi	J. Petersen/ industry	Jan 2008 – Jun 2015
Bezuidenhout, Chandon	Industry/ J. Petersen	Jan 2012 – Jun 2014
Muzawazi, Caroline	J. Petersen	Jan 2011 – Jun 2014
Jansen van Rensburg, Nicole	(Rossing) / J. Petersen/D. Deglon	Jul 2010 – Jun 2014
Simunika, Nathan	J. Broadhurst/J. Petersen (co-supv.)	Feb 2012 – Jun 2014
Nwaila, Glen	M. Becker/J. Petersen (co-supv.)	Feb 2012 – Jun 2014
Taute, JJ	K. Sole (AR)/ J. Petersen	Jan 2008 – Jun 2013
van der Merwe, Wendy	(Mintek) / J.Petersen	Jul 2010 – Dec 2012
Ledgerwood, Jonathan	(Namakwa Sands)/ J. Petersen	Feb 2011 - Dec 2012
Chiloane, Lehlogonolo	H. v. Blottnitz/ J. Petersenn (co-supv.)	Jan 2009 – Dec 2012
McCulloch, Neale	J. Hagemann (AngloPlat)/J. Petersen	Jan 2008 – Jun 2012
Fuls, Herman	(Anglo American) / J. Petersen	Jan 2008 – Dec 2011
de Klerk, Jaco	Industry/ J. Petersen	Jan 2008 – Dec 2011
Ramonotsi, Mpho	(industry)/ M.Becker/J. Petersen	Jan 2008 – Jun 2011
Adetunji, Olubode	J. Petersen	Jul 2009 – Jun 2011
Lusinga, Dion	J. Petersen/J. Broadhurst/J-P Franzidis	Feb 2009 – Jun 2011
Erasmus, Deborah	(industry)/J. Petersen	Jan 2008 – Dec 2010
Basson, Petrus	M. Nicol/ J. Petersen	Jan 2008 – Dec 2010
Mnguni, Mluleki	J. Petersen/S. Harrison	Mar 2008 – Dec 2010
Cherkaev, Alexey	J. Petersen	Sep 2007 – Dec 2010
Gangazhe, Takalani	K. Sole (AR)/ J. Petersen	Jan 2008 – Jun 2010
Kruiswijk, Lizelle	B. Ferreira (AR)/ M. Nicol/ J. Petersen	Jan 2008 – Dec 2009
Mwase, James	J. Petersen	July 2007 – Dec 2009
Solomon, Nomonde	A.Mainza/J. Petersen (co-superv.)	Jan 2007 – Jun 2010
Naik, Linus	S. Harrison/J. Petersen (co-superv.)	Jan 2007 – Dec 2010
Kuhn, Jeff	J. Harlamovs (TeckCominco)/ J. Petersen	June 2005 - Dec 2008
de Beer, Ronnie	J. Petersen	June 2005 - Dec 2008
Kamunga Kazadi, Thierry	J. Petersen	Jan 2005 – Jun 2007
Ogbonna, Nneoma	J. Petersen/H. Laurie	mid 2005 – Dec 2006

- These students have submitted

FULL PUBLICATIONS RECORD

1. PEER REVIEWED JOURNALS

1. Faraz Soltani, Mahmoud Abdollahy, Jochen Petersen, Rahul Ram, S.M. Javad Koleini, Davood Moradkhani: "Leaching and recovery of phosphate and rare earth elements from an iron rich fluorapatite concentrate: Part II: Selective leaching of calcium and phosphate and acid baking of the residue"; *Hydrometallurgy* 184 (2019) 29–38; DOI: 10.1016/j.hydromet.2018.12.024
2. T. Moyo, J. Petersen, M.J. Nicol: "The electrochemistry and kinetics of the oxidative dissolution of chalcopyrite in ammoniacal solutions. Part II – Cathodic reactions"; *Hydrometallurgy* 184 (2019) 67–74; DOI: 10.1016/j.hydromet.2018.12.020
3. P.J. van Staden, J. Petersen: "The effects of simulated stacking phenomena on the percolation leaching of crushed ore, Part 2: Stratification"; *Minerals Engineering* 131 (2019) 216–229; DOI: 10.1016/j.mineng.2018.11.021
4. Cledwyn Mangunda, Jochen Petersen, Alison Emslie Lewis: "The effect of Fe(III) concentration on the dewatering behaviour of Fe(III) oxyhydroxide precipitates from low-tenor solutions"; *Hydrometallurgy* 183 (2019) 20–28; DOI: 10.1016/j.hydromet.2018.11.010
5. T. Moyo, J. Petersen, M.J. Nicol: "The electrochemistry and kinetics of the oxidative dissolution of chalcopyrite in ammoniacal solutions: Part I – Anodic Reactions"; *Hydrometallurgy* 182 (2018) 97–103; DOI: 10.1016/j.hydromet.2018.10.018
6. I.M.S.K. Ilankoon, Yousef Ghorbani, Meng Nan Chong, Gamini Herath, Thandazile Moyo, Jochen Petersen: "E-waste in the international context – A review of trade flows, regulations, hazards, waste management strategies and technologies for value recovery"; *Waste Management* 82 (2018) 258–275; DOI: 10.1016/j.wasman.2018.10.018
7. P.J. van Staden, J. Petersen: "The effects of simulated stacking phenomena on the percolation leaching of crushed ore, Part 1: Segregation"; *Minerals Engineering* 128 (2018) 202–214; DOI: 10.1016/j.mineng.2018.08.045
8. Emmanuel Ngoma, Danilo Borja, Mariette Smart, Kathija Shaik, Hyunjung Kim, Jochen Petersen, Susan T.L. Harrison: "Bioleaching of arsenopyrite from Janggun mine tailings (South Korea) using an adapted mixed mesophilic culture"; *Hydrometallurgy* 181 (2018) 21–28; DOI: 10.1016/j.hydromet.2018.08.010
9. M.S. Ncongwane, J.L. Broadhurst, J. Petersen: "Assessment of the potential carbon footprint of engineered processes for the mineral carbonation of PGM tailings"; *International Journal of Greenhouse Gas Control* 77 (2018) 70–81; DOI: 10.1016/j.ijggc.2018.07.019
10. F. Soltani, M. Abdollahy, J. Petersen, R. Ram, M. Becker, S.M.J. Koleini and D. Moradkhani: 'Leaching and recovery of phosphate and rare earth elements from an iron-rich fluorapatite concentrate: Part I: Direct baking of the concentrate'; *Hydrometallurgy* 177, 2018, 66-78; DOI: 10.1016/j.hydromet.2018.02.014
11. K.Shaik and J. Petersen: 'An investigation of the leaching of Pt and Pd from cooperite, sperrylite and column bioleached concentrates in thiocyanate-cyanide systems'; *Hydrometallurgy* 173C, 2017, 210-217; DOI: 10.1016/j.hydromet.2017.08.021
12. J.M. Mwase, J. Petersen: 'Characterizing the leaching of sperrylite (PtAs₂) in cyanide-based solutions'; *Hydrometallurgy* 172, 2017, 1-10; DOI: 10.1016/j.hydromet.2017.06.019
13. P.J. van Staden, A.V. Kolesnikov, J. Petersen: 'Comparative assessment of heap leach production data – 1. A procedure for deriving the batch leach curve'; *Minerals Engineering* 101, 2017, 47–57; DOI: 10.1016/j.mineng.2016.11.009
14. P.J. van Staden, T.D. Huynh, M.K. Kiel, R.I. Clark, J. Petersen: 'Comparative Assessment of Heap Leach Production Data – 2. Heap Leaching Kinetics of Kipoi HMS Floats Material, Laboratory vs. Commercial Scale'; *Minerals Engineering* 101, 2017, 58–70; DOI: 10.1016/j.mineng.2016.11.015
15. C. Murray, W. Platzer, J. Petersen: 'Potential for solar thermal energy in the heap bioleaching of chalcopyrite in Chilean copper mining'; *Minerals Engineering* 100, 2017 75-82; DOI: 10.1016/j.mineng.2016.09.022
16. Moyo, T., Petersen J. 2016. Study of the dissolution of chalcopyrite in solutions of different ammonium salts. *Journal of the Southern African Institute of Mining and Metallurgy* 116(6), 2017, 509-516.

17. Ghorbani, Y., Franzidis, J.-P., Petersen, J.: 'Heap leaching technology – current state, innovations and future directions: A review'; *Minerals Processing and Extractive Metallurgy Review* 37:2, 2016, 73-119, DOI:10.1080/08827508.2015.1115990
18. Petersen, J.: 'Heap Leaching as a Key Technology for Recovery of Values from Low-grade Ores – A Brief Overview'; *Hydrometallurgy* 165, 2016, 206-212; DOI: 10.1016/j.hydromet.2015.09.001
19. Moyo, T., Petersen, J., Franzidis, J.-P., Nicol, M.: 'An electrochemical study of the dissolution of chalcopyrite in ammonia–ammonium sulphate solutions'; *Canadian Metallurgical Quarterly* 54, 2015, 268-277
20. Muzawazi, C. and Petersen, J. : 'Heap and tank leaching of copper and nickel from a Platreef flotation concentrate using ammoniacal solutions'; *Canadian Metallurgical Quarterly* 54, 2015, 296-303
21. Mwase, J.M., Petersen, J., Eksteen, J.J.: 'A novel sequential heap leach process for treating crushed Platreef ore'; *Hydrometallurgy* 141, 2014, 97 - 104
22. Ghorbani, Y., Becker, M., Petersen, J., Mainza, A. N. & Franzidis, J.-P.: 'Investigation of the effect of mineralogy as rate-limiting factors in large particle leaching'; *Minerals Engineering* 52, 2013, 38-51.
23. Fuls, H.F, and Petersen, J.: 'Evaluation of processing options for the treatment of zinc sulphide concentrates at Skorpion Zinc'; *Journal of the Southern African Institute of Mining and Metallurgy* 113 (5), 2013, pp. 423-434
24. Ghorbani, Y., Petersen, J., Becker, M., Mainza, A.N., Franzidis, J.-P. : 'Investigation and modelling of the progression of zinc leaching from large sphalerite ore particles', *Hydrometallurgy* 131 , 2013, pp. 8-23
25. Ghorbani, Y., Mainza, A.N., Petersen, J., Becker, M., Franzidis, J.-P., Kalala, J.T.: 'Investigation of particles with high crack density produced by HPGR and its effect on the redistribution of the particle size fraction in heaps'; *Minerals Engineering*, 43–44, 2013, pp 44-51
26. Ghorbani, Y., Petersen, J., Harrison, S.T.L., Tupikina, O.V., Becker, M., Mainza, A.N., Franzidis, J.-P. : 'An experimental study of the long-term bioleaching of large sphalerite ore particles in a circulating fluid fixed-bed reactor'; *Hydrometallurgy* 129-130 , 2012, pp. 161-171
27. Mwase, J.M., Petersen, J., Eksteen, J.J. : 'Assessing a two-stage heap leaching process for Platreef flotation concentrate'; *Hydrometallurgy* 129-130 , 2012, pp. 74-81
28. Mwase, J.M., Petersen, J., Eksteen, J.J.: 'A conceptual flowsheet for heap leaching of platinum group metals (PGMs) from a low-grade ore concentrate'; *Hydrometallurgy* 111-112 (1) , 2012, pp. 129-135
29. Ahmadi, A., Ranjbar, M., Schaffie, M., Petersen, J. : 'Kinetic modeling of bioleaching of copper sulfide concentrates in conventional and electrochemically controlled systems'; *Hydrometallurgy* 127-128 , pp. 16-23
30. Sheridan, C., Petersen, J., Rohwer, J.: 'On modifying the Arrhenius equation to compensate for temperature changes for reactions within biological systems'; *Water SA* 38 (1) , 2012, pp. 149-151
31. Solomon, N., Becker, M., Mainza, A., Petersen, J., Franzidis, J.-P.: 'Understanding the influence of HPGR on PGM flotation behavior using mineralogy'; *Minerals Engineering* 24 (12) , 2011, pp. 1370-1377
32. Ghorbani, Y., Becker, M., Petersen, J., Morar, S.H., Mainza, A., Franzidis, J.-P. : 'Use of X-ray computed tomography to investigate crack distribution and mineral dissemination in sphalerite ore particles', *Minerals Engineering*, 24 (12), 2011, 1249-1257
33. Ghorbani, Y., Becker, M., Mainza, A., Franzidis, J.-P. , Petersen, J.: 'Large particle effects in chemical/biochemical heap leach processes – A review', *Minerals Engineering* 24 (11), 2011, 1172-1184
34. C.M. Sheridan, D. Hildebrandt, D. Glasser, J. Petersen, and J. Rohwer: 'An annual and seasonal characterisation of winery effluent in South Africa'; *S. Afr. J. Enol. Vitic.*, Vol. 32, No. 1, 2011
35. T.V. Ojumu and J. Petersen: 'The kinetics of ferrous-iron oxidation by *Leptospirillum ferriphilum* in continuous culture: The effect of pH', *Hydrometallurgy* 106 (1-2), 2011 pp. 5-11
36. Ali Ahmadi , Mahin Schaffie, Jochen Petersen, Axel Schippers, Mohammad Ranjbar: 'Conventional and electrochemical bioleaching of Sarcheshmeh chalcopyrite concentrate by moderately thermophile bacteria at high pulp density'; *Hydrometallurgy* 106 (2011) 84–92
37. R.F van Schalkwyk, G. Akdogan, J.J. Eksteen, J. Petersen, E. Thyse: 'An experimental evaluation of the leaching kinetics of PGM containing Ni-Cu-Fe-S Peirce Smith converter matte, under atmospheric leach conditions'; *Minerals Engineering* 24 (6), 2011, pp. 524-534
38. M. Soleimani, J. Petersen, R. Roostaazad, S. Hosseini, S.M. Mousavi, A. Najafi, A.K. Vasiri: 'Leaching of a zinc ore and concentrate using the Geocoat™ technology'; *Minerals Engineering* 24, 2011, 64-69.

39. J. Petersen, S.H. Minaar, C.A. du Plessis: 'Carbon dioxide and oxygen consumption during the bioleaching of a copper ore in a large isothermal column'; *Hydrometallurgy* 104, 2010, 356-362.
40. J. Petersen: 'Modelling of bioleach processes: Connection between science and engineering'; *Hydrometallurgy* 104, 2010, 404-409
41. S.T.L. Harrison, J. Petersen and R.P. van Hille: 'Editorial: Foreword – Minerals Engineering Special Issue, Bio and Hydrometallurgy 2009'; *Minerals Engineering* 23(6), 2010, 457.
42. J. Petersen: 'Determination of oxygen gas-liquid mass transfer rates in heap bioleach reactors'; *Minerals Engineering* 23 (6), 2010, 504-510.
43. T.V. Ojumu, G.S. Hansford and J. Petersen: 'The kinetics of ferrous-iron oxidation by *Leptospirillum ferriphilum* in continuous culture: The effect of temperature'; *Biochemical Engineering Journal*, 46, 2009, pp 161-168.
44. M. Soleimani, S. Hosseini, R. Roostaazad, J. Petersen, S.M. Mousavi, A. Kazemi Vasiri: 'Microbial leaching of a low-grade sphalerite ore using a draft tube fluidized bed bioreactor'; *Hydrometallurgy* 99, 2009, pp 131–136.
45. T.V. Ojumu, J. Petersen and G.S. Hansford: "The effect of dissolved cations on microbial ferrous-iron oxidation by *Leptospirillum ferriphilum* in continuous culture"; *Hydrometallurgy* Vol. 94, 2008, 69-76.
46. T. Kamunga Kazadi, J. Petersen: "Kinetic measurement of biological oxidation of ferrous iron at low ferric-to-ferrous ratios in a controlled potential batch reactor"; *Hydrometallurgy* Vol. 94, 2008, 48-53.
47. J. Petersen and D.G. Dixon: "Modelling Zinc Heap Bioleaching"; *Hydrometallurgy* Vol. 85 (2-4), 2007, pp 127-143.
48. T. Ojumu, J. Petersen, G.E. Searby and G.S. Hansford: "A review of rate equations proposed for microbial ferrous-iron oxidation with a view to application to heap bioleaching"; *Hydrometallurgy*, Vol. 83, No. 1-4, 2006, pp 21-28.
49. J. Petersen and D.G. Dixon: "Competitive Bioleaching of Pyrite and Chalcopyrite"; *Hydrometallurgy*, Vol. 83, No. 1-4, 2006, pp 40-49.
50. N. Ogonna, J. Petersen and H. Laurie: An agglomerate scale model for the heap bioleaching of chalcocite"; *Transactions, Journal of the South African Institute of Mining and Metallurgy*, Vol. 106, No. 6, June 2006, pp 433-442.
51. K. Pillay, H.B. von Blottnitz and J. Petersen: "Oxidative Ageing of Cr(III) Bearing Land-Disposed Slag"; *Chemosphere*, Vol. 52, 2003, pp 1771-1779.
52. J. Petersen and D.G. Dixon: "Thermophilic Heap Leaching of A Chalcopyrite Concentrate"; *Minerals Engineering*, Vol. 15 (11), 2002, pp 777-785.
53. A. Tshilombo, J. Petersen and D.G. Dixon: "The Influence of Applied Potentials and Temperature on the Electrochemical Response of Chalcopyrite in Bacterial Leaching"; *Minerals Engineering*, Vol. 15 (11), 2002, pp 809-813.
54. J. Petersen and J.G. Petrie: "Modelling and Assessment of the Long-term Leachate Generation Potential in Deposits of Ferro-chromium Slags"; *Transactions of the South African Institute of Mining and Metallurgy*, October 2000, pp 369-378.
55. J. Petersen, M. Stewart and J.G. Petrie: "Management of Ferro- Alloy Wastes"; *Minerals & Energy – Raw Materials Report*, Vol. 14 (3), 1999, pp. 1-7,
56. B. Cohen, A.E. Lewis, J. Petersen, H.B. von Blottnitz, S.C. Drews and S.I. Mahote: "The TCLP and Its Applicability for the Characterization of Worst Case Leaching of Wastes from Mining and Metallurgical Operations"; *Advances in Environmental Research*, Vol. 3, 1999, pp 152-165.
57. J. Petersen and J.G. Petrie: "Modelling Heavy Metal Mobilisation in Solid Waste Deposits – A Predictive Tool for Environmental Risk Assessment"; *Water Science and Technology*, Vol. 39, No. 10-11, 1999, pp. 193-196.

2. Peer-reviewed and published Conference Proceedings

1. Hojat Naderi and Jochen Petersen: "Electrochemical Behaviour of Chalcopyrite in Presence of Sodium Peroxodisulfate"; in B. Davis et al. (eds.), *Extraction 2018, The Minerals, Metals & Materials Series*. Springer, (ISBN: 978-3-319-95021-1; DOI: 10.1007/978-319-95022-8), 1245-1255
2. B. Manana, J. Petersen, R. Ram: "Study of the diffusion of Cu(II) as an oxidant through simulated particle pores in a novel model apparatus"; in B. Davis et al. (eds.), *Extraction 2018, The Minerals, Metals & Materials Series*, Springer (ISBN: 978-3-319-95021-1; DOI: 10.1007/978-319-95022-8), 1361-1372

3. Cledwyn Mangunda, Jochen Petersen and Alison Lewis: "The Dewatering Behaviour of Transformed Ferri-Oxyhydroxide Precipitates Formed Under Moderate Temperature and Varying Fe(III) Concentrations"; in B. Davis et al. (eds.), *Extraction 2018, The Minerals, Metals & Materials Series*, Springer (ISBN: 978-3-319-95021-1; DOI: 10.1007/978-319-95022-8), 1597-1609
4. Cody Burcher-Jones, Sfiso Mkhize, Megan Becker, Rahul Ram, Jochen Petersen: "Study of the Department of REEs in Ion Adsorption Clays towards the Development of an In-situ Leaching Strategy"; in B. Davis et al. (eds.), *Extraction 2018, The Minerals, Metals & Materials Series*. Springer, (ISBN: 978-3-319-95021-1; DOI: 10.1007/978-319-95022-8) 2429-2439
5. J. Petersen 'Unravelling the complexity of heap bioleaching', in S. Hedrich, K. Rübberdt, F. Glombitza, W. Sand, A. Schippers, M. Vera Véliz and S. Willscher (eds.) '22nd International Biohydrometallurgy Symposium', Trans Tech Publications: *Solid State Phenomena 262 SSP*, 2017, pp. 246-249
6. J.M. Mwase and J. Petersen: 'The use of heap bioleaching as a pre-treatment for platinum group metal leaching', in S. Hedrich, K. Rübberdt, F. Glombitza, W. Sand, A. Schippers, M. Vera Véliz and S. Willscher (eds.) '22nd International Biohydrometallurgy Symposium', Trans Tech Publications: *Solid State Phenomena 262 SSP*, 2017, pp.151-154
7. E. Ngoma. K. Shaik, D. Borja, M. Smart, J.H. Park. H. Kim, J. Petersen, S.T.L. Harrison: 'Investigating the bioleaching of an arsenic mine tailing using a mixed mesophilic culture', in S. Hedrich, K. Rübberdt, F. Glombitza, W. Sand, A. Schippers, M. Vera Véliz and S. Willscher (eds.) '22nd International Biohydrometallurgy Symposium', Trans Tech Publications: *Solid State Phenomena 262 SSP*, 2017, pp. 668-672
8. P.J. van Staden, A. Naseri and J. Petersen: 'HeapSim Modelling of High Temperature Heap Bioleaching Data'; Proceedings of ALTA 2017 Nickel-Cobalt-Copper Sessions 22-14 May 2017, Perth, Australia, Alta Metallurgical Services Publications, ISBN: 978-0-9925094-8-4; 2017, p 210-246
9. T. Moyo and J. Petersen: 'A Kinetic Study of the Leaching of Chalcopyrite in Ammonia–Ammonium Sulphate Solutions' in 'Hydrometallurgy Conference 2016: Sustainable Hydrometallurgical Extraction of Metals', Cape Town, 1–3 August 2016; Southern African Institute of Mining and Metallurgy; SAIMM Symposium Series S89, ISBN 978-1-920410-84-1; 2016, p 87-100
10. Z. Sadan, V. Ntozakhe, M. Amirudin, T. Moyo, D. Bradshaw and J. Petersen, 'A Kinetic Investigation of Iodine Leaching of Gold Leaf from Electronic Circuit Boards', in 'Hydrometallurgy Conference 2016: Sustainable Hydrometallurgical Extraction of Metals', Cape Town, 1–3 August 2016; Southern African Institute of Mining and Metallurgy; SAIMM Symposium Series S89, ISBN 978-1-920410-84-1; 2016, p 373-382
11. P.J. van Staden and J. Petersen, 'A *PhreeqC* Model of Heap Leaching', in 'Hydrometallurgy Conference 2016: Sustainable Hydrometallurgical Extraction of Metals', Cape Town, 1–3 August 2016; Southern African Institute of Mining and Metallurgy; SAIMM Symposium Series S89, ISBN 978-1-920410-84-1; 2016, p 37-48
12. N. Jansen van Rensburg and J. Petersen, 'A Value-Based Approach to Leach Optimization at Rössing Uranium Limited', in 'Hydrometallurgy Conference 2016: Sustainable Hydrometallurgical Extraction of Metals', Cape Town, 1–3 August 2016; Southern African Institute of Mining and Metallurgy; SAIMM Symposium Series S89, ISBN 978-1-920410-84-1; 2016, p 111-122
13. C. Burcher-Jones, S. Lodewyk, K. Shaik and J. Petersen, 'Conversion Kinetics of Cyanide to Thiocyanate in the Presence of Reduced Sulphur Species: Sulphite, Thiosulphate and Polysulphide', in 'Hydrometallurgy Conference 2016: Sustainable Hydrometallurgical Extraction of Metals', Cape Town, 1–3 August 2016; Southern African Institute of Mining and Metallurgy; SAIMM Symposium Series S89, ISBN 978-1-920410-84-1; 2016, p 219-226
14. X.C. Goso, J. Petersen, J. Nell and K. Bisaka, 'Scoping Study of the Upgrading of Fluxed and Fluxless Titaniferous Magnetite Slags using the Upgraded Slag Process', in 'Hydrometallurgy Conference 2016: Sustainable Hydrometallurgical Extraction of Metals', Cape Town, 1–3 August 2016; Southern African Institute of Mining and Metallurgy; SAIMM Symposium Series S89, ISBN 978-1-920410-84-1; 2016, p 423-434
15. C. Mangunda, J. Petersen and A.E. Lewis, 'An Initial Investigation Into The Effect Of Fe (III) Concentration On The Product Characteristics Of Fe(III) Oxyhydroxide Precipitates During Lime Precipitation', in 'IMPC 2016: XXVIII International Mineral Processing Congress Proceedings - International Symposium on Iron Control in Hydrometallurgy'; Canadian Institute of Mining Metallurgy and Petroleum, ISBN: 978-1-926872-29-2; 2016, e-paper 926
16. D. Taggard and J. Petersen 'Evaluating The Effect Of Seeding On Zinc Recovery Through The Zincor Iron Removal Circuit', in 'IMPC 2016: XXVIII International Mineral Processing Congress

- Proceedings - International Symposium on Iron Control in Hydrometallurgy'; Canadian Institute of Mining Metallurgy and Petroleum, ISBN: 978-1-926872-29-2; 2016, e-paper 927
17. T. Moyo, J. Petersen, J.-P. Franzidis: 'Study of the Dissolution of Chalcopyrite in Solutions of Different Ammonium Salts' in 'Copper Cobalt Africa in Association with the 8th Southern African Base Metals Conference 2015'; SAIMM Symposium Series S83, ISBN 978-1-920410-71-1; 2015, p 217-228
 18. C. Muzawazi, J. Petersen: 'Base Metal Heap and Tank Leaching from a Platreef Flotation Concentrate Using Ammonical Solutions' in E. Asselin et al. (eds.) Proceedings of the 7th International Symposium - Hydrometallurgy 2014 – Volume I; Canadian Institute of Mining, Metallurgy and Petroleum; ISBN 978-1-926872-22-3; 2014, p 159-169
 19. T. Moyo, J. Petersen, J.-P. Franzidis, M.J. Nicol: 'An Electrochemical Study of the Dissolution of Chalcopyrite in Ammonia-ammonium Sulphate Solution', in E. Asselin et al. (eds.) Proceedings of the 7th International Symposium - Hydrometallurgy 2014 – Volume I; Canadian Institute of Mining, Metallurgy and Petroleum; ISBN 978-1-926872-22-3; 2014, p 375-383
 20. J. Petersen: 'Teaching and Training of Hydrometallurgy at UCT', in E. Asselin et al. (eds.) Proceedings of the 7th International Symposium - Hydrometallurgy 2014 – Volume I; Canadian Institute of Mining, Metallurgy and Petroleum; ISBN 978-1-926872-22-3; 2014, p 479-488
 - A. Nesbitt, J. Petersen, J.-P. Franzidis: 'Decoupling Intra-particle Diffusion from Lumped Parameters to Determine the In-service Decay of an Acid Ion-exchange Resin', in E. Asselin et al. (eds.) Proceedings of the 7th International Symposium - Hydrometallurgy 2014 – Volume II; Canadian Institute of Mining, Metallurgy and Petroleum; ISBN 978-1-926872-23-0; 2014, p 213-222
 21. J. Mwase, J. Petersen: 'Heap Leaching for Sustainable Development in the South African PGM Industry', in E. Asselin et al. (eds.) Proceedings of the 7th International Symposium - Hydrometallurgy 2014 – Volume II; Canadian Institute of Mining, Metallurgy and Petroleum; ISBN 978-1-926872-23-0; 2014, p 779-787
 22. J. Petersen, C. Muzawazi, J. Mwase and G. Jones: 'Ammonia Heap Leaching of Chalcopyrite in Low Grade Ores – A Fresh Perspective?'; in Copper 2013: Proceedings of the Copper International Conference, Santiago, Chile 1-4 December 2013 – Vol. IV Hydrometallurgy; G. Ugarte, (ed), The Chilean Institute of Mining Engineers (IIMCH), p 67-78
 23. N. Simunika, J. Broadhurst, J. Petersen, S.T.L. Harrison, J.-P. Franzidis; 'Predicting the time-related generation of acid rock drainage from mine waste: A copper case study'; in S. Winchester, F. Valenzuela and D. Mulligan (eds.) Environmine 2013: 3rd International Seminar on Environmental Issues in Mining; Santiago, Chile, 5-6 December 2013; Gecamin, Santiago, ISBN 978-956-9393-04-4; p 282-291
 24. L. Chiloane, J. Petersen, H. von Blottnitz, J.-P. Franzidis; 'Towards a framework for analysing co-location of utility scale solar power plants with metallurgical operations' ; in S. Winchester, F. Valenzuela and D. Mulligan (eds.) Environmine 2013: 3rd International Seminar on Environmental Issues in Mining; Santiago, Chile, 5-6 December 2013; Gecamin, Santiago, ISBN 978-956-9393-04-4; p 563-569
 25. P. Duku, S.H. Minnaar, S.T.L. Harrison, J. Petersen: 'A Novel Apparatus to Determine the Bio-Oxidation Kinetics of Sessile *Leptospirillum ferriphilum*', in N. Guiliani, C. Demergasso, R. Quatrini, F. Remonsellez, C., Davies-Belmar, G. Levican, P. Parada, C. Barahona and R. Zale (eds.). Integration of Scientific and Industrial Knowledge on Biohydrometallurgy - Advanced Materials Research, Volume 825; doi: 10.4028/www.scientific.net/AMR.825.238, 2013, p 238-241 (access: <http://www.scientific.net> ; Login: jochen.petersen@uct.ac.za; PW: 39qmi7j6ol) (proceedings of IBS2013, Antofagasta, Chile, 8-11 September 2013)
 26. G Nwaila, M Becker, Y Ghorbani, J Petersen, D L Reid, L C Bam, F C de Beer and J-P Franzidis: 'A Geometallurgical Study of the Witwatersrand Gold Ore at Carletonville, South Africa'; The Second Ausimm International Geometallurgy Conference / Brisbane, Qld, 30 September - 2 October 2013, AUSIMM publications, 75-83
 27. Lusinga, D., Petersen, J. and Broadhurst, J.: 'A multi-criteria analysis and comparison of primary copper processing options'; Environmine 2011, 2nd International Seminar on Environmental Issues in the Mining Industry; Santiago, Chile, 23-25 November 2011; Gecamin, Santiago, ISBN 978-956-8504-61-8, Chapter 2, p14 (abstract in print, full paper on disk only)
 28. Y. Ghorbani, J. Petersen, M. Becker, A. Mainza and J.-P. Franzidis: 'Investigation of heap leaching at the particle scale using X-ray computed tomography'; International Conference on Percolation Leaching: The Status Globally and in Southern Africa, 7–9 November 2011, Misty Hills, Muldersdrift, South Africa; Southern African Institute of Mining and Metallurgy (SAIMM) Symposium Series S69, Johannesburg, 221-234

29. Mwase, J.M., Petersen, J. and Eksteen, J.J.: 'Assessing A Two-Stage Heap Leaching Process For Platereef Flotation Concentrate'; International Conference on Percolation Leaching: The Status Globally and in Southern Africa, 7–9 November 2011, Misty Hills, Muldersdrift, South Africa; Southern African Institute of Mining and Metallurgy (SAIMM) Symposium Series S69, Johannesburg, 145-164
30. Cherkaev, A., Basson, P. and Petersen, J.: 'Mathematical And Computer Modelling Of The Chloride Assisted Leaching Of Covellite - Pore Diffusion Phenomena'; International Conference on Percolation Leaching: The Status Globally and in Southern Africa, 7–9 November 2011, Misty Hills, Muldersdrift, South Africa; Southern African Institute of Mining and Metallurgy (SAIMM) Symposium Series S69, Johannesburg, 239-254
31. Gangazhe, T., Sole, K. and Petersen, J.: 'Zinc extraction from high chloride liquors'; ISEC2011, Proceedings of the 19th International Solvent Extraction Conference, Santiago, Chile, 3-7 October 2011
32. Y. Ghorbani, A.N. Mainza, J.Petersen, J.T. Kalala, M. Becker and J-P. Franzidis: 'Use of X-ray computed tomography to quantify the differences in cracks and pores in sphalerite ore particles when comminuted using an HPGR and cone crusher for heap leach feed preparation'; 5th International Conference on Autogenous and Semiautogenous Grinding Technology, Vancouver, B.C. Canada; September 25 – 29, 2011
33. Y. Ghorbani, J. Petersen, O.V. Tupikina, S.T.L. Harrison, M. Becker, A. Mainza and J-P. Franzidis: 'Investigation of the bioleaching of coarse sphalerite ore particles by a mixed culture of mesophilic chemolithotrophs in saturated leach reactors'; Proceedings of the 19th International Biohydrometallurgy Symposium, September 18 – 22, 2011, Changsha, China; Central South University Press, Changsha, ISBN 978-7-5487-0356-3, 249-257
34. Petersen, J., Minaar, S.H. and du Plessis, C.A.: 'Respirometry studies of the bioleaching of a copper ore in large columns – effect of changing temperatures'; Proceedings of the 19th International Biohydrometallurgy Symposium, September 18 – 22, 2011, Changsha, China; Central South University Press, Changsha, ISBN 978-7-5487-0356-3, 53-58
35. Y. Ghorbani, J. Petersen, M. Becker, A. Mainza and J-P. Franzidis: 'Investigation of heap leaching of individual large particles using 3D characterization by X-ray computed tomography'; 22. World Mining Congress & Expo 2011, September 11-16, 2011
36. M.Becker, M. Ramonotsi, J. Petersen: 'Effect of Alteration on the Mineralogy and Flotation Performance of PPM Platinum Ore'; Proceedings of the International Congress for Applied Mineralogy (ICAM), Trondheim, Norway, 1-5 August 2011; M.A.T.H. Broekmans (ed.), ISBN 978-82-7385-139-0, 63-71
37. J. Petersen: 'Understanding and Modelling of Interactions in Bioleach Processes' in Biohydrometallurgy: A Meeting Point Between Microbial Ecology, Metal Recovery Processes and Environmental Remediation, E.R. Donati, M.R. Viera, E.L. Tavani, M.A. Giaveno, T.L. Lavalle and P.A. Chiacchiarini (Eds.), Advanced Materials Research 71-73, Trans Tech Publications Ltd., Zurich (ISSN 1022-6680), 2009, pp 303-310. (Short article, republished as full article form in *Hydrometallurgy*, 2010).
38. J. Petersen, S.H. Minaar and C.A. du Plessis: 'Respirometry Studies of the Bioleaching of a Copper Ore in a Large Isothermal Column' in Biohydrometallurgy: A Meeting Point Between Microbial Ecology, Metal Recovery Processes and Environmental Remediation, E.R. Donati, M.R. Viera, E.L. Tavani, M.A. Giaveno, T.L. Lavalle and P.A. Chiacchiarini (Eds.), Advanced Materials Research 71-73, Trans Tech Publications Ltd., Zurich (ISSN 1022-6680), Zurich, 2009, pp 405-408. (Short article, republished as full article form in *Hydrometallurgy*, 2010).
39. T.V. Ojumu and J. Petersen: 'Kinetics of Microbial Ferrous-iron Oxidation by *Leptospirillum ferriphilum*: Effect of Ferric-iron on Biomass Growth' in Biohydrometallurgy: A Meeting Point Between Microbial Ecology, Metal Recovery Processes and Environmental Remediation, E.R. Donati, M.R. Viera, E.L. Tavani, M.A. Giaveno, T.L. Lavalle and P.A. Chiacchiarini (Eds.), Advanced Materials Research 71-73, Trans Tech Publications Ltd., Zurich (ISSN 1022-6680), 2009, pp 259-262
40. T.V. Ojumu, S.T.L. Harrison, G.S. Hansford and J. Petersen: 'Biooxidation kinetics of *Leptospirillum ferriphilum* under heap bioleach conditions'; in Hydrometallurgy 2008 Proceedings of the 6th International Symposium, Honoring Robert S. Shoemaker; C.A. Young, P.R. Taylor, C.G. Anderson and Y. Choi (eds.), SME, Littleton, Colorado, USA, 2008, pp 484-491.
41. T.V. Ojumu, J. Petersen and G.S. Hansford: "The effect of aluminium and magnesium on the rate of ferrous-iron oxidation by *Leptospirillum ferriphilum* in continuous culture"; in Biohydrometallurgy: from the single cell to the environment (IBS2007); A. Schippers, W. Sand, F. Glombitza, S.

- Willscher (eds.), Volume 20-21 of *Advanced Materials Research*, Transtech Publications Ltd., Zurich, 2007, pp 156-159. (Short article, republished as full article form in *Hydrometallurgy*, 2008).
42. T. Kamunga Kazadi, J. Petersen: "Kinetic measurement of biological oxidation of ferrous iron at low ferric-to-ferrous ratios in a controlled potential batch reactor"; in *Biohydrometallurgy: from the single cell to the environment (IBS2007)*; A. Schippers, W. Sand, F. Glombitza, S. Willscher (eds.), Volume 20-21 of *Advanced Materials Research*, Transtech Publications Ltd., Zurich, 2007, pp 160-163. (Short article, republished as full article form in *Hydrometallurgy*, 2008).
 43. J. Petersen and T.V. Ojumu: "The effect of total iron concentration and iron speciation on the rate of ferrous iron oxidation kinetics of *Leptospirillum ferriphilum* in continuous tank systems"; in *Biohydrometallurgy: from the single cell to the environment (IBS2007)*; A. Schippers, W. Sand, F. Glombitza, S. Willscher (eds.), Volume 20-21 of *Advanced Materials Research*, Transtech Publications Ltd., Zurich, 2007, pp 447-452.
 44. C. Sheridan, J. Petersen, J. Rohwer, S. Burton: "Engineering Design Of Subsurface Flow Constructed Wetlands For The Primary Treatment Of Winery Effluent"; *Proceedings of the 10th International Conference on Wetland Systems for Water Pollution Control*, September 23-29, 2006 Lisbon, Portugal, ISBN: 989-20-0361-6, pp 1623-1632.
 45. J. Petersen, H. Watling, D. Dixon, P. Franzmann, J. Plumb, J. Johnson, S. Harrison and G. Hansford: "Progress On The Development Of Comprehensive Understanding And A Model Of Copper Heap Bioleaching – The Amira P768 Project"; in *Hydrocopper 2005*, J.M.Menacho, J.M. Casas de Prada (Eds.), ISBN 956-19-0492-6, Santiago, Chile (2005), pp 333-342.
 46. T. Ojumu, J. Petersen, G.E. Searby and G.S. Hansford: "A review of rate equations proposed for microbial ferrous-iron oxidation with a view to application to heap bioleaching", in *Proceedings of the 16th Biohydrometallurgy Symposium*, S.T.L. Harrison, D.E. Rawlings and J. Petersen (Eds.), ISBN 1-9200511-17-1, South Africa, 2005, pp 85-94.
 47. J. Petersen and D.G. Dixon: "Competitive Bioleaching of Pyrite and Chalcopyrite", in *Proceedings of the 16th Biohydrometallurgy Symposium*, S.T.L. Harrison, D.E. Rawlings and J. Petersen (Eds.), ISBN 1-9200511-17-1, South Africa, 2005, pp 55-64.
 48. N.Ogbonna, J. Petersen and D.G.Dixon: "HeapSim – Unravelling the Mathematics of Heap Bioleaching", in *Computational Analysis in Hydrometallurgy*, 35th Annual Hydrometallurgy Meeting, M.Dry and D.G.Dixon (eds.), MetSoc, Calgary, Canada, 2005, pp 225-240.
 49. J. Petersen, S.T.L. Harrison, H.R. Watling, P. Franzmann and D.G. Dixon: "Understanding and Optimisation of Heap Bioleach Processes", in *Colloquium – Innovations in Leaching Technologies*, ISBN 1-919-783-62-8, The South African Institute for Mining and Metallurgy, Johannesburg, 2004.
 50. HR Watling, PD Franzmann, DJ Readett, D. Dixon and J Petersen: "Progress towards the heap bioleaching of chalcopyrite", in *Proc. Green Processing (Fremantle, May 2004)*, AusIMM, Melbourne, 2004, pp 133-139.
 51. D.G. Dixon and J.Petersen: "Comprehensive Modelling Study of Chalcocite Column and Heap Bioleaching"; in *Copper 2003 - Volume VI: Hydrometallurgy of Copper (Book 2)*, P.A. Riveros, D. Dixon, D. Dreisinger, J. Menacho (eds.), CIM, Montreal, Canada, 2003, pp 493-516.
 52. J. Petersen and D.G.Dixon: "A Modelling Study of the Dynamics of Sulphide Heap Leach Processes with a View to Improved and Novel Application"; in *Proceedings of the XXII International Mineral Processing Congress; Volume 3*, L. Lorenzen, D.J. Bradshaw, C. Aldrich, J.J. Eksteen, M. Wright and E. Thom (eds.), SAIMM, Marshalltown, South Africa, 2003, pp 1231-1240.
 53. J.Petersen and D.Dixon: "Bacterial Growth and Propagation in Chalcocite Heap Bioleach Scenarios"; in *Biohydrometallurgy – A Sustainable Technology in Evolution, IBS 2003*; M. Tzesos, A. Hatzikioseyan, E. Remoundaki (eds.), National Technical University of Athens, Greece, ISBN 960-88415-0-X, 2004, pp 65-74.
 54. J. Petersen and D.G.Dixon: "Dynamics of Chalcocite Bio-heap Leaching"; in *Hydrometallurgy 2003, Proceedings of the 5th International Symposium Honoring Professor Ian M. Ritchie*, Volume 1, C.Young, A. Alfantazi, C. Anderson, A. James, D. Dreisinger, B. Harris (eds.), TMS Publishers., Warrendale, PA, 2003, pp 351-364.
 55. J.Petersen and D.G.Dixon: "Systematic Modelling of Heap Leach Processes for Optimisation and Design"; in *EPD Congress 2002*, P.R.Taylor (ed.), TMS Publishers, Warrendale, PA, 2002, pp 757-771.
 56. J. Petersen, D.G. Dixon, M. Timmins and R. Ruitenberg: "Batch Reactor Studies of the Leaching of Pyrite/Chalcopyrite Concentrate Using Thermophilic Bacteria"; in *BioHydrometallurgy: Fundamentals, Technology and Sustainable Development (IBS 2001)* V.S.T. Ciminelli and O.Garcia Jr. (eds.), Elsevier, Amsterdam, 2001, PartA, pp. 525-533.

57. J. Petersen and J.G. Petrie: "A Modelling Strategy to Predict Leachate Generation Within Minerals Processing Waste Deposits"; XX International Minerals Processing Congress, Aachen, Germany, Sep 1997; H.B. von Blottnitz and H. Hohberg (eds.), Vol. 5, pp 81-90.

3. Chapters in Books

1. J. Petersen: 'Chapter 17: 'Evidence and Study of the Oxidation of Cr(III) to Cr(VI) and its Mobilisation from Solid Cr-Containing Waste Materials' in Management of Hazardous Residues Containing Cr(VI); M.J. Balart Murria (Ed.); Nova Science Publishers, 2010, ISBN: 978-1-61668-267-5
2. J. Petersen and D.G. Dixon: "Principles, Mechanisms and Dynamics of Chalcocite Heap Bioleaching", in Microbial Processing of Metal Sulfides, E.Donati, W. Sand (eds.), Springer Verlag, Berlin, 2007, ISBN 978-1-4020-5588-1, pp 193-218.
3. J. Petersen and D.G. Dixon: "Modeling and Optimisation of Heap Bioleach Processes"; in Biomining, D.E. Rawlings, D.B. Johnson (Eds.), Springer Verlag, Berlin, 2006, ISBN 978-3-540-34909-9, pp 153-176.
4. J. Petersen, M. Stewart, J.G.Petrie: "Management of Ferro-Alloy Wastes" in *Environmental Policy in Mining – Corporate Strategy and Planning for Closure*; A. Warhurst and L. Noronha (eds.), Lewis Publishers, Boca Raton, 1999, Ch. 11, pp. 217-228.

4. PhD Thesis

J. Petersen: "Assessment and Modelling of Chromium Release from Minerals Processing Waste Deposits"; PhD Thesis, University of Cape Town, 1998.

5. Patents

1. Eksteen, J.J. Mwase, J.M. Petersen, J.: 'Energy Efficient Recovery Of Precious Metals And Base Metals'; 2011, World Patent PCT/Ib2011/054270
2. Petersen, J. Dann, M.S. 'Apparatus And Method For Measuring Flow; 2010; South African Patent 2010/06168