

BRIEF CURRICULUM VITAE OF



PROF. THOKOZANI MAJOZI^{1,2}, PHD, PR_{ENG}, MASSAF, FWISA, MSAIC_{hE}, FSSAE

¹UNIVERSITY OF PRETORIA, SOUTH AFRICA

([HTTP://WWW.UP.AC.ZA/ACADEMIC/CHEMENG/PERSONNEL/MAJOZI_T/INDEX.HTML](http://www.up.ac.za/academic/chemeng/personnel/majozi_t/index.html))

²FELLOW: COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH (CSIR)

PERSONAL DETAILS

Surname	Majozi
First Name	Thokozani
Residential Address	8 George Road Eldoraigne Centurion 0157 South Africa
Postal Address	8 George Road Eldoraigne Centurion 0157 South Africa
Telephone (home)	+27 (0)12 654 9297
Cell number	+27 (0)82 456 1500
Telephone (work)	+27 (0)12 420 4130
Fax	+27(0)12 362 5173
E-mail	thoko.majozi@up.ac.za
Date of Birth	03 October 1972
Place of Birth	South Africa (Durban)
Nationality	South African
ID Number	7210035368081
First language	Zulu
Second Language	English

POST SCHOOL EDUCATION

- **PhD (2002)**; University of Manchester Institute of Science and Technology (UMIST, UK)
- **M.ScEng (1998)**; University of Natal (South Africa)
- **B.ScEng (Chemical) (1994)**; University of Natal (South Africa)

INTERNATIONAL AFFILIATIONS

UNIVERSITY OF PANNONIA, HUNGARY (ASSOCIATE PROFESSOR: 2005 – 2009)
UNIVERSITY OF LIMERICK, IRELAND (CONSULTANT)

OTHER AFFILIATIONS

Fellow: Council for Scientific and Industrial Research (CSIR)

Fellow: South African Academy of Engineering (SAAE)

Fellow: Water Institution Southern Africa (WISA)

Vice-President: Engineering Council of South Africa (ECSA)

TWAS Young Affiliate: The African Academy of Sciences

Fellow: Academy of Sciences of South Africa (ASSAf)

RATING AS A SCIENTIST: NRF Rating

P (NRF President's Award)

RESEARCH COLLABORATION

ACADEMIA

- Professor Ferenc Friedler – University of Pannonia, Hungary
- Dr. Dominic Foo – University of Nottingham, Malaysia
- Professor Toshko Zhelev – University of Limerick, Ireland
- Dr Mamdouh Gadalla – Universitat Rovira i Virgili, Spain
- Professor Raymond Tan – De La Salle University, Manila, Phillipines
- Professor Cheng-Liang Chen – National University of Taiwan
- Dr Anurag Garg – India Institute of Technology, Bombay, India
- Dr Santanu Bhandyopadhyay – India Institute of Technology, Bombay, India

INDUSTRY

- African Explosives Limited (AEL)
- Johnson & Johnson (Pty) Ltd
- Council for Scientific and Industrial Research (CSIR)
- Unilever SA
- Amalgamated Beverage Industries (ABI)

CURRENT LECTURING DUTIES

UNDERGRADUATE

- Transfer Processes COP 311. Third Year Chemical Engineering

POSTGRADUATE

- Process Integration CIP732. BEng(Hons)/MEng (Chemical Engineering)

RESEARCH FUNDING

- NRF President's Award
- Water Research Commission, *Development of Zero-Effluent Mathematical Model for Wastewater Minimization in a Pharmaceuticals Facility*
- CSIR, *Process Integration Research*
- Saneri: Energy Hub (EEDSM), *Energy Optimization in Chemical Plants*
- Water Research Commission, *Water Conservation Through Energy Conservation*
- Water Research Commission, *Batch Process Integration: Wastewater Minimization in Multipurpose Batch plants*

- Johnson & Johnson (Pty) Ltd, *Wastewater Minimization Using Process Integration*
- SERA funded project, *Process Integration as an Optimization Tool in Clean Coal Technology*
- CSIR, *Wastewater Minimization in Batch Chemical Plants*
- NRF/SA-Hungarian Bilateral Agreement, *Scheduling of Complex Batch Plants by S-graph Technology*
- NRF/SA-Spain Bilateral Agreement, *IGCC Optimization Using Process Integration*
- NRF/Thuthuka, *Batch Process Integration: Design & Synthesis of Batch Plants*
- NRF/SA-Hungarian Bilateral Agreement, *Batch Process Integration: Design, Scheduling and Synthesis of Multipurpose Batch Plants*
- THRIP, *Effluent Reduction*
- African Explosives Limited (AEL), *A Sustainable Methodology for Effluent Reduction in a Nitrates Production Facility*
- ESKOM, *Process Integration as an Optimization Tool in Power Generation*

COMPLETED AND CURRENT RESEARCH STUDENTS

Completed Students	
Student	Project title
Nongezile Nyathi (MEng) [2004 – 2006], Completed with Distinction.	Water Conservation Through Energy Conservation
Anand Moodley (MEng) [2004 – 2006] Completed	Development of a Unified Mass and Heat Integration Framework for Sustainable Design – An automated approach
Thomas Pattinson (MEng) [2006 – 2007] Completed	Batch Process Integration: Synthesis, Design and Optimization of Multipurpose Batch Chemical Plants
Jacques Gouws (PhD) [2006 – 2008] Completed	Batch Process Integration: Development of a complete process integration framework for wastewater minimization in multipurpose batch plants
Sternberg Coetzee (MEng) [2006 – 2007] Completed with Distinction	Combined Heat and Mass Integration: Industrial Steam System Optimization
Bernard Ongwae (MEng) [2005 – 2009] Completed	Application of Mixed Integer (Non)Linear Programming in the Production Optimization of a Multipurpose Pharmaceuticals Facility
David Mokebe (MEng) [2006 – 2007] Completed	Life Cycle Assessment (LCA) technique as a holistic tool for environmental impact and economic analysis of a co-pulping process
Vhutshilo Madzivhandila (MEng) [2009 – 2010] Completed	Clean Coal Technology Using Process Integration
Tim Price (MEng) [2008 – 2009] Completed	Combined Heat and Mass Integration: Industrial Steam System Optimization
Donald Nonyane (MEng) [2009 - 2011] Completed	Advanced Modelling of Integrated Processes
Bola Adekola (MEng) [2009 - 2011] Completed	Analysis, Synthesis and Optimization of Near-Zero Effluent Multipurpose Batch Plants

Jane Stamp (MEng) [2009 - 2011] Completed	Heat Integration of Multipurpose Batch Plants with Storage Considerations
Vincent Gololo (MEng) [2009 - 2010] Completed	Process Integration for Complex Cooling Water Systems
Esmael Reshid (MEng) [2009 – 2011] Completed	Development of Advanced Techniques for Scheduling Multipurpose Batch Plants

Current Students (MEng)

Knowledge Molokoane [2010 -]	Optimization of Integrated Gasification Combined Cycle (IGCC) Using Process Integration
Sheldon Beangstrom [2011 -]	Stem System Network Analysis, Synthesis and Optimization

Current Students (PhD)

Mkhokheli Ndlovu [2009 -]	Clean Coal Technology Using Process Integration
Bola Adekola [2011 -]	Analysis, Synthesis and Optimization of Near-Zero Effluent Multipurpose Batch Plants
Esmael Reshid [2011 -]	Development of Advanced Techniques for Scheduling Multipurpose Batch Plants
Vincent Gololo [2011 -]	Process Integration for Complex Cooling Water Systems
Tim Price [2011 -]	Combined Heat and Mass Integration: Industrial Steam System Optimization
Mahdi Laahli [2011 -]	IGCC Optimization: A Process Systems Engineering Approach

RECENT PUBLICATIONS IN INTERNATIONAL REFEREED JOURNALS

1. MAJOZI, T., Zhu, X.X., 2001, 'A Novel Continuous Time MILP Formulation for Multipurpose Batch Plants. 1. Short-term Scheduling', *Industrial and Engineering Chemistry Research Journal* 40(25): 5935 - 5949, 2001.
2. Zhu, X.X., Majozi, T., 2001, 'A Novel Continuous Time MILP Formulation for Multipurpose Batch Plants. 2. Integrated Planning and Scheduling', *Industrial and Engineering Chemistry Research Journal* 40(23): 5621 - 5634.
3. Zhu, X.X., Majozi, T., 2001, A novel continuous time MILP formulation for multipurpose batch plants-integrated planning, design and scheduling, *Computer Aided Chemical Engineering*, 9: 937-942.
4. MAJOZI, T., Zhu, X.X., 2004, 'Impact of Personnel Allocation on Deterministic Planning and Scheduling', *AIChE Journal* 50(5): 999 - 1016.

5. MAJOZI, T., Zhu, X.X., 2005, 'A Combined Fuzzy Set Theory and MILP Approach in Integration of Planning and Scheduling of Batch Plants', *Computers & Chemical Engineering*, 29(9), 2029-2047.
6. MAJOZI, T., 2005, 'An Effective Technique for Wastewater Minimisation in Batch Processes', *Journal of Cleaner Production*, 13(15), 1374-1380.
7. MAJOZI, T., Brouckaert, C.J.B., Buckley, C.A.B., 2006, 'A Graphical Technique for Wastewater Minimisation in Batch Processes', *Journal of Environmental Management*, 78(4), 317 – 329.
8. MAJOZI, T., 2005, 'Wastewater Minimization Using Central Reusable Water Storage in Batch Processes', *Computers and Chemical Engineering Journal*, 29(7): 1631-1646.
9. MAJOZI, T., 2006, 'Storage Design for Maximum Wastewater Reuse in Multipurpose Batch Plants', *Industrial and Engineering Chemistry Research*, 45(17): 5936 - 5943.
10. MAJOZI, T., 2006, 'Heat Integration of Multipurpose Batch Plants Using a Continuous-Time Formulation', *Applied Thermal Engineering Journal*, 26: 1369 – 1377.
11. MAJOZI, T., Friedler, F., 2006, 'Maximization of Throughput in a Multipurpose Batch Plant under Fixed Time Horizon: S-Graph Approach', *Industrial and Engineering Chemistry Research*, 45(20): 6713 - 6720.
12. MAJOZI, T., Nyathi, N., 2007, 'On Cooling Water Systems Design for the South African Industry – Two Recent Developments', *South African Journal of Science*, Vol. 103 No 5/6, 239-244.
13. Gouws, F.G., Majozi, T., 2007, 'Effective Scheduling Technique for Zero-Effluent Multipurpose Batch Plants', *Revista de Chemie*, 58: 415 – 418.
14. Coetzee, S.W.A., Majozi, T., 2007, 'Steam System Design Using a Novel Graphical Targeting Method and MILP model', *Computer Aided Chemical Engineering*, 24: 1115 – 1120.
15. Holczinger, T., Majozi, T., Hegyhati, M., Friedler, F., 2007, 'An Automated Algorithm for Throughput Maximization Under Fixed Time Horizon in Multipurpose Batch Plants: S-Graph Approach', *Computer Aided Chemical Engineering*, 24: 649 – 654.
16. Holczinger, T., Majozi, T., Hegyhati, M., Friedler, F., 2007, An automated algorithm for throughput maximization under fixed time horizon in multipurpose batch plants: S-Graph approach, *Computer Aided Chemical Engineering*, 24: 649-654.
17. Gouws, J. F., Majozi, T., 2008, Synthesis of zero effluent multipurpose batch processes using effective scheduling, *Computer Aided Chemical Engineering*, 25: 217-222.
18. MAJOZI, T., Moodley, A., 2008, 'Simultaneous targeting and design for cooling water systems with multiple cooling water supplies: An Automated Approach', *Computers and Chemical Engineering*, 32: 540-551.
19. Gouws, J., MAJOZI, T., 2008, 'Impact of Multiple Storage in Wastewater Minimisation for Multi-Contaminant Batch Plants: Towards Zero Effluent', *Industrial and Engineering Chemistry Research*, 47: 369 - 379.
20. Gouws, J. F., MAJOZI, T., Gadalla, M., 2008, 'Flexible Mass Transfer Model for Water Minimization in Batch Plants', *Chemical Engineering and Processing*, 47: 2323 - 2335.
21. Coetzee, S., MAJOZI, T., 2008, 'Steam System Network Synthesis Using Process Integration', *Industrial and Engineering Chemistry Research Journal*, 47: 4405 – 4413.
22. Gouws, J.F., Majozi, T., 2008, 'A Mathematical Technique for the Design of Near Zero-Effluent Batch Processes', *Water SA*, 34(3): 291 - 296.
23. Chew, I.M-L., Tan, R., Ng, D.K-S., Foo, D.C-Y., MAJOZI, T., Gouws, J., 2008, 'Synthesis of Direct and Indirect Interplant Water Network', *Industrial and Engineering Chemistry Research*, 47(23): 9485 – 9496.
24. Hegyhati, M., MAJOZI, T., Holczinger, T., Friedler, F., 2009, 'Practical Infeasibility of Cross-Transfer in Batch Plants with Complex Recipes: S-graph vs MILP Methods', *Chemical Engineering Science*, 64: 605 – 610.

25. MAJOZI, T., Gouws, J., 2009, Reliable method for water reuse in multi-contaminant batch plants: NIS Policy. *Applied Mathematical Modeling*, 33: 3792 – 3800.
26. MAJOZI, T., 2009, Minimization of energy use in multipurpose batch plants using heat storage: an aspect of cleaner production, *Journal of Cleaner Production*, 17: 945 – 950.
27. Gouws, J. F., Majozi, T., 2009, Usage of Inherent Storage for Minimisation of Wastewater in Multipurpose Batch Plants, *Chemical Engineering Science*, 64: 3545 – 3554.
28. MAJOZI, T., Gouws, J., 2009, A mathematical optimization approach for wastewater minimization in multiple contaminant batch plants, *Computers and Chemical Engineering*, 33: 1826 - 1840.
29. Pattinson, T., MAJOZI, T., 2009, Introducing a New Operational Policy in Multipurpose Batch Plants: The PIS Operational Policy, *Computers and Chemical Engineering*, 34: 59 – 72.
30. Madzivhandila, V., Majozi, T., Zhelev, T., 2009, Process Integration as an Optimization Tool in Clean Coal Technology: A focus on IGCC, *Chemical Engineering Transactions*, 18: 941 – 946.
31. Price, T., Majozi, T., 2009, An effective technique for the synthesis and optimization of steam system networks, *Computer Aided Chemical Engineering*, 27: 77-482.
32. Price, T., Majozi, T., 2009, Using Process Integration for Steam System Network Optimization with Sustained Boiler Efficiency, *Computer Aided Chemical Engineering*, 26: 1281-1286.
33. Gouws, J.F., Majozi, T., 2009, Wastewater Storage Minimisation through the Exploitation of Inherent Storage, *Computer Aided Chemical Engineering*, 26: 1221-1226.
34. Gadalla, M., Emun, F., Majozi, T., Jiménez, L., 2009, Environmental Design of IGCC through Pinch Analysis, Process Integration and Parameters Analysis, *Computer Aided Chemical Engineering*, 26: 561-566.
35. Jiménez, L., Gadalla, M., Majozi, T., Boer, D., 2010, Integrated gasification combined cycle (IGCC) process simulation and optimization, *Computers and Chemical Engineering*, 34: 331 - 338.
36. MAJOZI, T., Price, T., 2010, On Synthesis and Optimization of Steam System Networks. 1. Sustained Boiler Efficiency, *Industrial and Engineering Chemistry Research*, 49: 9143 - 9153.
37. Price, T., MAJOZI, T., 2010, Synthesis and Optimization of Steam System Networks. 2. Sustained Boiler Efficiency, *Industrial and Engineering Chemistry Research*, 49: 9154 - 9164.
38. Price, T., MAJOZI, T., 2010, On Synthesis and Optimization of Steam System Networks. 3. Sustained Boiler Efficiency, *Industrial and Engineering Chemistry Research*, 49: 9165 - 9174.
39. Gouws, J. F., MAJOZI, T., Foo, D. C-Y., Chen, C-L and Lee, J-Y, 2010, Water Minimization Techniques for Batch Processes, *Industrial and Engineering Chemistry Research*, 49: 8877 - 8893.
40. Gololo, K. V., MAJOZI, T., 2011, On Synthesis and Optimization of Cooling Water Systems with Multiple Cooling Towers, *Industrial and Engineering Chemistry Research*, 50: 3775 – 3787.
41. Gololo, V., Majozi, T., Zhelev, T., Semkov, K. 2011, Guided design of heating and cooling mains for lower water and energy consumption and increased efficiency, *Chemical Engineering Transactions*, 25: 755-760.
42. Madzivhandila, V., MAJOZI, T., Zhelev, T., 2011, Recovery of Flue Gas Energy in Heat-Integrated Gasification Combined Cycle (IGCC) Power Plants Using the Contact Economizer System, *Energy and Fuels*, 25: 1529 - 1536 .
43. Adekola, O, Majozi, T., 2011, Wastewater minimization in multipurpose batch plants with a regeneration unit: Multiple contaminants, *Computers & Chemical Engineering*, *Computers and Chemical Engineering*, **In press**: doi: 10.1016/j.compchemeng.2011.04.008

- Stamp, J., MAJOZI, T., 2011, Optimum Heat Storage Design for Heat Integrated Multipurpose Batch Plants, *Energy*, **In press**: doi: 10.1016/j.energy.2011.06.009

SUBMITTED PAPERS TO ISI LISTED JOURNALS

- Nonyane, D.R., Majozi, T., 2011, Long-term Scheduling Technique for Wastewater Minimization in Multipurpose Batch Processes, *Journal of Applied Mathematical Modeling*.
- Reshid, E., Majozi, T., 2011, Advanced Scheduling Technique for Multipurpose Batch Plants, *Chemical Engineering Science Journal*.
- Reshid, E., Majozi, T., 2011, A Novel Technique for Prediction of Time Points for Scheduling of Multipurpose Batch Plants, *Chemical Engineering Science Journal*.

NON-REFEREED JOURNALS/PUBLICATIONS

- MAJOZI, T., 2004, 'Batch Chemical Processes: The Derelict Family', *Chemical Technology* (February issue comment).
- MAJOZI, T., 2004, 'Batch Chemical Process Redesign for Wastewater Minimization Using Process Integration', *Chemical Technology* (December issue). **1st Prize Award winning article for the SAICHe/Chemical Technology Competition.**
- MAJOZI, T., SEWNARAIN, R, BHEDASSI, R, PILLAY, B., 2005, 'An Exact Approach for Design and Synthesis of Batch Plants', *Chemical Technology* (February issue).
- NYATHI, N., MAJOZI, T., 2005, 'On Cooling Water and Effluent Reduction in Systems with Multiple Cooling Water Sources – A Pinch Design Philosophy.' *Chemical Technology* (December issue). **3rd Prize Award winning article for the SAICHe/Chemical Technology Competition.**
- MAJOZI, T., 2006, 'A serious oversight: Omission of optimization as a compulsory course in undergraduate chemical engineering', *Chemical Technology* (October issue comment).
- Pattinson, T., Gouws, J., MAJOZI, T., 2006, 'Recent Advances in Process Integration', *Chemical Technology* (December issue).
- Jovancic, B., Majozi, T., 2006, 'Multi-purpose batch process heat integration including a novel MILP for heat storage', *Chemical Technology* (November issue).
- MAJOZI, T., The Dearth of Black Professional Engineers (PrEngs): A cause for concern, *Chemical Technology* (December 2007 issue comment).
- MAJOZI, T., Energy crisis!...Energy crisis! Where are the Chemical Engineers?, *Chemical Technology* (June 2008 issue comment).
- MAJOZI, T., The Other Side of Engineering Software: A Reality for New Generation Engineers, *Chemical Technology* (February 2009).
- MAJOZI, T., 'Lowering the Activation Energy of a South African Chemical Engineer: In search of a formula', (June 2009 Comment).
- Coetzee, S., MAJOZI, T., 2009, 'Water Conservation through Steam Conservation', *Chemical Technology* (September 2009 Article).
- MAJOZI, T., 'Establishing a Culture of Research Collaboration in SA academia: An Advantage or A Disadvantage?', *Chemical Technology* (September 2009 Comment).
- MAJOZI, T., 'A Short Account of One Species in a Foreign Terrain', *Chemical Technology* (November 2009 Comment).
- MAJOZI, T., 'Electricity Crisis: Lessons Unlearnt', *Chemical Technology* (June 2010 Comment).
- MAJOZI, T., 'Recycle and Reuse in a true sense', *Chemical Technology* (August 2010 Comment).
- MAJOZI, T., 'South African Water Situation: A Once in a Lifetime Opportunity', *Chemical Technology* (December 2010 Comment).
- Water recycling: 'Go grey to keep going', *Financial Mail*, 19 November 2010. Editor: Stafford Thomas

19. Not Abundant: Looming water crisis really the 'dawn of reality', *Engineering News*, 10 December 2010. Editor: Dennis Ndaba

INTERNATIONAL REFEREED CONFERENCES (CONFERENCE PROCEEDINGS)

1. MAJOZI, T., Zhu, X.X., 'Application of Fuzzy Set Theory in a Deterministic Planning and Scheduling Environment', AIChE 2001 Annual Meeting, Reno, Nevada, November 4 – 9, **ISBN 0816997608**.
2. MAJOZI, T., Zhu, X.X., 'Incorporation of Personnel Allocation within the Framework of Planning and Scheduling using Fuzzy Set Theory', ESCAPE 11, Kolding, Denmark, May 27 – 30, 2001, **ISBN 0444507094**.
3. MAJOZI, T., Zhu, X.X., 'A Novel Continuous Time MILP Formulation for Multipurpose Batch Plants', AIChE 2000 Annual Meeting, Los Angeles, California, November 12 – 17.
4. Brouckaert, C.J., MAJOZI, T., Gardener, G. and Buckley, C.A., 'The Application of Pinch Analysis to Water and Effluent Management in the Process Industry', 2nd Asia-Pacific Cleaner Production Roundtable and Trade Expo, Global Competitiveness Through Cleaner Production, Brisbane Convention & Exhibition Centre, Brisbane, Australia, 21-24 April 1999, **ISBN 0646385461**.
5. MAJOZI, T., Brouckaert, C.J. and Buckley, C.A., 'Effluent Reclamation and Reuse in a Group of Agrochemical Manufacturing Plant Using Process Integration', Fourth International Symposium on Waste Management Problems in Agro-industries, Istanbul, Turkey, 23-25 September 1998, **ISBN 0080434118**.
6. MAJOZI, T., 'An Effective Technique for Wastewater Minimization in Batch Processes', 53rd Canadian Chemical Engineering & PRES'03 Conference, Ontario, Canada, 26 – 29 October 2003.
7. MAJOZI, T., 'An Effective Technique for Wastewater Minimization in Batch Processes – 2. Multiple contaminants', 16th International Congress of Chemical and Process Engineering, 22 – 26 August 2004, Prague, Czech Republic, **ISBN 8086059405**.
8. MAJOZI, T., 'Heat Integration of Multipurpose Batch Plants Using a Continuous-Time Framework', 16th International Congress of Chemical and Process Engineering, 22 – 26 August 2004, Prague, Czech Republic, **ISBN 8086059405**.
9. MAJOZI, T., 'Continuous vs Discrete-Time Approaches in Batch Chemical Process Scheduling – Application to Heat Integration', Veszprem Optimization Conference on Advanced Algorithms (VOCAL), 13 –15 December 2004, Veszprem, Hungary.
10. Nyathi, N., MAJOZI, T., 'Water Conservation Through Energy Conservation', The 7th Italian Conference on Chemical and Process Engineering, Giardini di Naxos, Taormina, 15 – 18 May 2005, **ISBN 8890077581**.
11. Moodley, A., MAJOZI, T., 'Development of a Unified Mass and Heat Integration Framework for Sustainable Design', The 7th Italian Conference on Chemical and Process Engineering, Giardini di Naxos, Taormina, 15 – 18 May 2005, **ISBN 8890077581**. (**2nd Prize Winner for Zdenek Burainec Memorial Award**)
12. MAJOZI, T., 'Optimum Storage Design for Optimum Freshwater Requirement in Multipurpose Batch Plants ', The 7th Italian Conference on Chemical and Process Engineering, Giardini di Naxos, Taormina, 15 – 18 May 2005, **ISBN 8890077581**.
13. MAJOZI, T., 'Storage Design for Maximum Wastewater Reuse in Multipurpose Batch Plants Using an Effective Continuous-Time Formulation', 7th World Congress of Chemical Engineering, Glasgow, Scotland, 10 – 14 July 2005, **ISBN 0852954948**.
14. MAJOZI, T., Sarkozi, N., Friedler, F., 'Extended S-graph for Scheduling of Complex Industrial Problems - A Mining Case Study', 7th World Congress of Chemical Engineering, Glasgow, Scotland, 10 – 14 July 2005, **ISBN 0852954948**.

15. MAJOZI, T., Brouckaert, C.J. and Buckley, C.A., 'Waterpinch Applied to Batch Processes', WISA 98 Biennial Conference and Exhibition, Cape Town, 4-7 May 1998, **ISBN 0620224223**.
16. Gouws, J.F., MAJOZI, T., 'Multicontaminant wastewater minimization in batch processes using distributed storage', 17th International Congress of Chemical and Process Engineering, 27 – 31 August 2006, Prague, Czech Republic, **ISBN 8086059456**.
17. Pattinson, T., MAJOZI, T., 'Towards the development of a new class of batch plants via the exploitation of latent storage capacity: storageless batch plants', 17th International Congress of Chemical and Process Engineering, 27 – 31 August 2006, Prague, Czech Republic, **ISBN 8086059456**.
18. MAJOZI, T., Holczinger, T., Adonyi, R., Friedler, F., 'Maximization of throughput over a fixed time horizon using a recently developed S-graph approach: A pharmaceuticals case study', 17th International Congress of Chemical and Process Engineering, 27 – 31 August 2006, Prague, Czech Republic, **ISBN 8086059456**.
19. Dhlamini, S.M., Marwala, T., MAJOZI, T., 'Fuzzy and Multilayer Perceptron for Evaluation of HV Bushings', In Proceedings of the IEEE International Conference on Systems, Man and Cybernetics, Taiwan, 2006, 8 -11 October, **ISBN 1424401003**.
20. Holczinger, T., MAJOZI, T., Hegyhati, M., Friedler, F., 'Using S-graph for Throughput Maximization in Multipurpose Batch Plants', Veszprém Optimization Conference on Advanced Algorithms (VOCAL), 13 – 15 December 2006, Hungary. **Proceedings on CD ROM**
21. Coetzee, S., MAJOZI, T., 'A Novel Pinch Targeting Method and MILP Model for Steam System Design', Veszprém Optimization Conference on Advanced Algorithms (VOCAL), 13 – 15 December 2006, Hungary. **Proceedings on CD ROM**
22. Pattinson, T., MAJOZI, T., 'Elimination of Intermediate Storage via the Exploitation of Latent Storage Capacity', Veszprém Optimization Conference on Advanced Algorithms (VOCAL), 13 – 15 December 2006, Hungary. **Proceedings on CD ROM**
23. MAJOZI, T., 'Water Pinch Analysis', Southern African Regional Conference on Cleaner Production, Eskom Conference Centre, Midrand, South Africa, 11 May 1998.
24. MAJOZI, T., 'WaterPinch for Batch Processes', African Pinch Seminar, Govan Mbeki Conference Centre, UDW, Durban, 18 – 20 November 2002, South Africa. **Proceedings on CD ROM**
25. MAJOZI, T., Sewnarain, R, Bhedassi, R, Pillay, B., 'An Exact Approach for Design and Synthesis of Batch Plants', SAICHe Congress, 3 -5 September 2003, South Africa. **Proceedings on CD ROM**
26. MAJOZI, T., 'Optimal Scheduling of Multipurpose Batch Plants with Variable Unit Performance', SAICHe Congress, 3 - 5 September 2003, South Africa. **Proceedings on CD ROM**
27. MAJOZI, T., 'Integrated Framework for Scheduling and Wastewater Minimization in Batch Processes', SAICHe Congress, 3 - 5 September 2003, South Africa. **Proceedings on CD ROM**
28. MAJOZI, T., 'Effective Technique for Integration of Distributed Chemical Processes', SAICHe Congress, 3 - 5 September 2003, South Africa. **Proceedings on CD ROM**
29. MAJOZI, T., 'Impact of Human Intervention on Planning and Scheduling of Batch Plants', SAICHe Congress, 3 - 5 September 2003, South Africa. **Proceedings on CD ROM**
30. Harmse, M., MAJOZI, T., 'Applying MINLP to optimise a production and transportation schedule for a multipurpose facility', ORSSA 34th Annual Conference, 3 – 8 September 2004, South Africa. **Proceedings on CD ROM**
31. Coetzee, S., MAJOZI, T., 'A Novel Technique for Steam System Design', South African Chemical Engineering Congress, 20 – 22 September 2006, ICC, Durban, South Africa, **ISBN 1868406172**

32. Moodley, A., MAJOZI, T., 'Simultaneous Targeting and Design for Practically Constrained Cooling Water Systems - Resolution of Inherent Convexities', 20 – 22 September 2006, ICC, Durban, South Africa, **ISBN 1868406172**
33. Pattinson, T., MAJOZI, T., 'Development of a New Class of Batch Plants via the Exploitation of Latent Storage Capacity: Storageless Batch Plants', 20 – 22 September 2006, ICC, Durban, South Africa, **ISBN 1868406172**
34. Nyathi, N., MAJOZI, T., 'A Graphical Targeting and Design Technique for Complex Cooling Water Systems', 20 – 22 September 2006, ICC, Durban, South Africa, **ISBN 1868406172**
35. Gouws, J., MAJOZI, T., 'Multicontaminant Wastewater Minimisation in Batch processes Using Central Reusable Water Storage', 20 – 22 September 2006, ICC, Durban, South Africa, **ISBN 1868406172**
36. MAJOZI, T., Friedler, F., 'A Graph-Theoretic Approach for Throughput Maximization over a Fixed Time Horizon', 20 – 22 September 2006, ICC, Durban, South Africa, **ISBN 1868406172**
37. Coetzee, S., MAJOZI, T., 'Steam System Design Using a Novel Graphical Targeting Method and MILP Model', European Symposium on Computer Aided Process Engineering (ESCAPE), 27 – 30 May 2007, Bucharest, Romania. **ISBN 978-0-444-53157-5**
38. Gouws, J., MAJOZI, T., 'Effective scheduling technique for zero-effluent multipurpose batch plants', European Symposium on Computer Aided Process Engineering (ESCAPE), 27 – 30 May 2007, Bucharest, Romania. **ISBN 978-0-444-53157-5**
39. Pattinson, T., MAJOZI, T., 'Grassroot Design of Storageless Batch Plants', European Symposium on Computer Aided Process Engineering (ESCAPE), 27 – 30 May, Bucharest, Romania. **ISBN 978-0-444-53157-5**
40. Holczinger, T., MAJOZI, T., Hegyhati, M., Friedler, F., 'An Automated Algorithm for Throughput Maximization Under Fixed Time Horizon in Multipurpose Batch Plants: S-Graph Approach', European Symposium on Computer Aided Process Engineering (ESCAPE), 27 – 30 May, Bucharest, Romania. **ISBN 978-0-444-53157-5**
41. Coetzee, S., MAJOZI, T., 'Design Considerations in Steam System Debottlenecking Using Process Integration', 10th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, 24 – 27 June 2007, Ischia Island, Gulf of Naples. **ISBN 88-901915-4-6**
42. MAJOZI, T., Holczinger, T., Hegyhati, M., Friedler, F., 'Throughput Maximization in Multipurpose Batch Plants: S-graph Vs Time Point Based Methods', 10th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, 24 – 27 June 2007, Ischia Island, Gulf of Naples. **ISBN 88-901915-4-6**
43. Gouws, J., MAJOZI, T., 'Towards the Design of a Zero Effluent Facility in the Pharmaceutical Industry', 10th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, 24 – 27 June 2007, Ischia Island, Gulf of Naples. **ISBN 88-901915-4-6**
44. Hegyhati M., T. Holczinger, T. Majozzi, F. Friedler, Transforming STN based scheduling problems to S-graph representation, presented at: XIX Polish Conference of Chemical and Process Engineering, Rzeszów, Poland, September 3-7, 2007. **ISBN 978-83-7199-453-1**
45. Adonyi, R., T. Holczinger, T. Majozzi, and F. Friedler, Novel branching procedure for S-graphs based scheduling of batch processes, presented at: XIX Polish Conference of Chemical and Process Engineering, Rzeszów, Poland, September 3-7, 2007. **ISBN 978-83-7199-453-1**
46. Gouws, J. F., Majozzi, T., 2008, Synthesis of Zero Effluent Multipurpose Batch Plants Using Effective Scheduling, ESCAPE18, 01 - 04 June, Lyon, France. **ISBN 978-0-444-53227-5**
47. Gouws, J. F., Majozzi, T., 2008, Wastewater minimisation using inherent storage capacity in multipurpose batch plants: an unexplored dimension, 24 - 28 August, Prague, Czech Republic. **ISBN: 978-80-02-02047-9**
48. T. Majozzi, 2008, Challenges in teaching and learning engineering in South Africa, 24 - 28 August, Prague, Czech Republic. **ISBN: 978-80-02-02047-9**

49. T. Holczinger, T. Majozi, F. Friedler, 2008, Optimal scheduling of batch plants with complex recipes, 24 - 28 August, Prague, Czech Republic. **ISBN: 978-80-02-02047-9**
50. M. Hegyhati, T. Majozi, F. Friedler, 2008, Throughput maximization in a multipurpose batch plant, 24 - 28 August, Prague, Czech Republic. **ISBN: 978-80-02-02047-9**
51. T. Majozi, T. Holczinger, F. Friedler, 2008, Implications of cross-transfer in batch plants with complex recipes: S-graph vs MILP methods, 24 - 28 August, Prague, Czech Republic. **ISBN: 978-80-02-02047-9**
52. Madzivhandila, V., Majozi, T., Zhelev, T., 2009, Process integration as an optimization tool in clean coal technology: A focus on IGCC, PRES'09, 10 – 13 May, Rome, Italy. **ISBN: 978-88-95608-04-4**
53. Gadalla, M., Emun, F., Majozi, T., Jimenez, L., 2009, Environmental design of IGCC through Pinch Analysis, Process Integration and Parameters Analysis, ESCAPE19, 14 -17 June, Krakow, Poland. **ISBN: 978-0-444-53433-0**
54. Gouws, J. F., Majozi, T., 2009, Wastewater minimisation through the exploitation of inherent storage, ESCAPE19, 14 -17 June, Krakow, Poland. **ISBN: 978-0-444-53433-0**
55. Price, T., Majozi, T., 2009, Using process integration for steam system network optimization with sustained boiler efficiency, ESCAPE19, 14 -17 June, Krakow, Poland. **ISBN: 978-0-444-53433-0**
56. Price, T., Majozi, T., 2009, An Effective Technique for the Synthesis and Optimization of Steam System Networks, 10th International Symposium on Process Systems Engineering - PSE2009, 16 – 20 August, Salvador, Bahia, Brazil, **ISBN-13: 978-0-444-53435-4**
57. Madzivhandila, V, Majozi, T. and Zhelev, T., Pinch analysis for efficient energy utilization in IGCC plants, SACEC2009, Stellenbosch, South Africa, 20 – 23 September 2009. **ISBN: 978-1-920355-21-0 (CD-ROM)**
58. Stamp, J.D., Majozi, T. and Sandrock, C., On energy optimisation in multipurpose batch plants using heat storage, SACEC2009, Stellenbosch, South Africa, 20 – 23 September 2009. **ISBN: 978-1-920355-21-0 (CD-ROM)**
59. Gouws, J.F. and Majozi, T., Usage of Inherent Storage for Minimisation of Wastewater in Multipurpose Batch Plants, SACEC2009, Stellenbosch, South Africa, 20 – 23 September 2009. **ISBN: 978-1-920355-21-0 (CD-ROM)**
60. Price, T. and Majozi, T., An Effective Technique for the Optimisation and Synthesis of Steam Systems, SACEC2009, Stellenbosch, South Africa, 20 – 23 September 2009. **ISBN: 978-1-920355-21-0 (CD-ROM)**
61. Zhelev, T., Majozi, T., Environmental Engineering Through Combined Energy-water Pinch Analysis, 5th Dubrovnik conference on sustainable development of energy, water and environment systems, Sep-Oct, 2009, Dubrovnik, Croatia, 1-6, **ISBN 978-953-6313-98-3**
62. Gololo, K.V., Majozi, T., Cooling Water Systems Design Using Process Integration, Third IASTED African Conference, POWER AND ENERGY SYSTEMS (AfricaPES 2010), September 6 – 8, 2010, Gaborone, Botswana, pp 202 – 205, **ISBN: 978-0-88986-847-2; ISSN: 1922-8074**
63. Madzivhandila, V.A., Majozi, T., Zhelev, T., Pinch Analysis for Efficient Energy Utilization in IGCC Plants: Incorporation of Contact Economiser, Third IASTED African Conference, POWER AND ENERGY SYSTEMS (AfricaPES 2010), September 6 – 8, 2010, Gaborone, Botswana, pp 233 – 237, **ISBN: 978-0-88986-847-2; ISSN: 1922-8074**
64. Gololo, V., Majozi, T., 2010, Process Integration: Cooling Water Systems Design, *The 13th Asia Pacific Confederation of Chemical Engineering Congress (APCChE)*, October 5 – 8, 2010, Taipei, TAIWAN.
65. Majozi, T., Stamp, J., 2010, On Energy Optimisation in Multipurpose Batch Plants using Heat Storage, *The 13th Asia Pacific Confederation of Chemical Engineering Congress (APCChE)*, October 5 – 8, 2010, Taipei, TAIWAN.
66. Madzivhandila, V., Majozi, T., 2010, Recovery of Flue Gas Energy in Heat Integrated IGCC Power Plants using the Contact Economiser System, *The 13th Asia Pacific Confederation of Chemical Engineering Congress (APCChE)*, October 5 – 8, 2010, Taipei, TAIWAN.

67. Zhelev T., Semkov K., Mooney E., Majozi T. and Korobelnikov A., Industrial Heat Utilisation Through Water Management, *8th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics*, 11 – 13 July 2011, Pointe Aux Piments, Mauritius.
68. Beangstrom S.G, Majozi T. and Zhelev T.K., Steam System Synthesis Using Process Integration Techniques: A Graphical Approach for Multiple Steam Levels, *8th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics*, 11 – 13 July 2011, Pointe Aux Piments, Mauritius.
69. Gololo K.V., Majozi T., and Toshko Zhelev, Synthesis and Optimization of Cooling Water Systems with Multiple Cooling Towers, *8th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics*, 11 – 13 July 2011, Pointe Aux Piments, Mauritius.
70. Gololo K.V., Majozi T., and Toshko Zhelev, Guided Design of Heating and Cooling Mains for Lower Water and Energy Consumption and Increased Efficiency, *14th International Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction*, 8-11 May 2011 - Florence, Italy y 2011.

PUBLISHED REPORTS

1. WRC Project K5/1625, September 2005, Wastewater minimization in batch plants.
2. WRC Project K5/1368, February 2005, Water conservation through energy conservation.

CHAPTERS IN BOOKS

Majozi, T, Foo, D., **Chapter 34: Water Minimization in the Soft Drinks Industry**, 904 – 928, Handbook of Water and Energy Management in Food Processing, Edited by J. Klemes, R. Smith and J-K. Kim. Woodhead Publishing Limited, Cambridge, England. ISBN: 978-1-84569-195-0.

Majozi, T, Gouws, J., **Chapter 19: Wastewater Minimization in Batch Plants: Single Contaminant Media**, Recent Advances in Sustainable Process Design and optimization, Edited by D. C-Y. Foo, M.M. El-Halwagi and R.R. Tan. World Scientific Publishing, Imperial College Press. ISBN: 978-981-4271-95-0.

Majozi, T, Gouws, J., **Chapter 20: Wastewater Minimization in Batch Plants: Multiple Contaminant Media**, Recent Advances in Sustainable Process Design and optimization, Edited by D. C-Y. Foo, M.M. El-Halwagi and R.R. Tan. World Scientific Publishing, Imperial College Press. ISBN: 978-981-4271-95-0.

BOOKS

Batch Chemical Process Integration



Analysis, Synthesis and Optimization
Majozi, Thokozani
 2010, XIX, 282 p., Hardcover
 ISBN: 978-90-481-2587-6
 Published in January 2010

Usually dispatched between 3 to 5 business days

approx. 159,95 €

Website: <http://www.springer.com/chemistry/book/978-90-481-2587-6>

INTERNATIONAL NON-REFEREED CONFERENCES

1. MAJOZI, T., Zhu, X.X., 'Integration of Planning and Scheduling for Multipurpose Batch Plants – Fixed Time Horizons', XVI Research Consortium Meeting, Department of Process Integration, UMIST, England, October 2000.
2. MAJOZI, T., Zhu, X.X., 'Integration of Planning and Scheduling for Multipurpose Batch Plants – Variable Time Horizons', XVII Research Consortium Meeting, Department of Process Integration, UMIST, England, October 2001.
3. Price, T, Coetzee, S., MAJOZI, T. 'Steam System Network Synthesis Using Process Integration', International Federation of Operational Research Societies Conference (IFORS) Sandton, 13-18 July 2008.
4. Price, T, MAJOZI, T. 'Steam System Network Optimization Using Process Integration: Embracing Boiler Efficiency', International Workshop on Stochastic and Applied Global Optimization (SAGO 2008), 19-22 July, Skukuza, Kruger National Park.
5. Gouws, J.F, MAJOZI, T. 'A mathematical optimisation technique for the effective scheduling of zero-effluent batch plants', International Federation of Operational Research Societies Conference (IFORS) Sandton, 13-18 July 2008.
6. Gouws, J.F, MAJOZI, T. 'Inherent Storage as an Alternative to Central Storage for Wastewater Minimisation in Batch Processes', International Workshop on Stochastic and Applied Global Optimization (SAGO 2008), 19-22 July, Skukuza, Kruger National Park.
7. Shingwenyana, R., MAJOZI, T. 'Process Integration as an Optimisation Tool in Clean Coal Technology', International Federation of Operational Research Societies Conference (IFORS) Sandton, 13-18 July 2008.
8. Hegyhati, M., MAJOZI, T., Holczinger, T., Friedler, F., 2008, 'Practical Infeasibility of Mathematical Models in Scheduling', Veszprém Optimization Conference on Advanced Algorithms (VOCAL), 15 – 17 December 2008.

COURSES PRESENTED

MAJOZI, T., HARMSE, M., '**Linear Programming**', Sasol Technology (2002).
MAJOZI, T., '**General Algebraic Modelling System**', Sasol Technology (2003).
MAJOZI, T., '**SuperTarget for Pinch Technology**', Sasol Technology (2003).
MAJOZI, T., VAN SCHIJNDEL, P.P.A.J., '**Sustainable Engineering for Science and Technology**', 18 – 20 January 2005, University of Pretoria.

INVITED LECTURES/SEMINARS

MAJOZI, T., '**Process Integration: What's mathematics got to do with it?**', December 2010, University of Nottingham, Malaysia.
MAJOZI, T., '**Process Integration: How far have we come?**', February 2010, Univesitat Rovira i Virgili, Spain.
MAJOZI, T., '**Process Integration: How far have we come?**', February 2010, University of Limerick, Ireland
MAJOZI, T., '**Recent Advances in Process Integration**', December 2009, Univesitat Rovira i Virgili, Spain.
MAJOZI, T., '**Beauty of Mathematics in Process Integration**', September 2009, Dalian University of Technology, China.
MAJOZI, T., '**Beauty of Mathematics in Process Integration**', September 2009, India Institute of Technology (IIT), Bombay, India .
MAJOZI, T., '**Steam System Design Using Process Integration**', January 2008, University of Limerick, Ireland.
MAJOZI, T., '**Integration of Planning and Scheduling in Multipurpose Batch Plants**', June 2000,

University of KwaZulu-Natal, South Africa.

MAJOZI, T., **'Introduction to Fuzzy Set Theory'**, April 2004, University of the Witwatersrand, South Africa.

MAJOZI, T., **'Scheduling and Design of Batch Plants'**, April 2004, University of the Witwatersrand, South Africa.

MAJOZI, T., **'Batch Process Integration'**, June 2004, University of Veszprém, Hungary

MAJOZI, T., **'Recent Developments in Cooling Water System Design'**, *Process Engineering in the Fast Lane*, June 2005, University of Pretoria.

MAJOZI, T., **'Maximum Wastewater Reuse Using an Effective Continuous-Time Formulation'**, September 2005, University of Johannesburg, South Africa.

COMPANY PRESENTATIONS

- **'Process Integration as a Wastewater Minimization Technique – Recent Advances'**, Sasol Technology (Sastech), March 2004
- **'Opportunities for Wastewater Minimization in the Pulp and Paper Industry'**, Mondi Paper, September 2004
- **'A Sustainable Methodology for Effluent Reduction in a Nitrates Production Facility'**, African Explosives Limited (AEL), July 2005
- **'Process Integration as a Wastewater Minimization Technique – Recent Advances'**, South African Breweries (SAB), February 2005
- **'Recent Developments in Process Integration'**, Johnson & Johnson, September 2005
- **'Steam System Network Synthesis Using Process Integration'**, Mondi Paper South Africa, January 2008
- **'Recent Advances in Process Integration'**, Sasol Technology (Sastech), January 2008
- **'Batch Process Scheduling Optimization'**, MOL Group, Hungary, February 2008

ACHIEVEMENTS & AWARDS

- NSTF Category B Award: Individual contribution to research over the last 5 to 10 years
- Bill Neal-May Gold Medal Award for Outstanding Achievement and International Recognition (2010) – South African Institution of Chemical Engineers (SAIChE)
- NRF President's Award (Transformation of the Scientific Cohort), 2009
- S2A3 British Association Medal, 2008
- Leading Minds (1908 – 2008) Centenary Award, University of Pretoria, 2008
- NRF President's Award (P rating), 2007
- NSTF Award for Distinguished Young Black Researcher in the last 5 – 10 yrs, 2006
- Award for Outstanding Young Researcher, School of Engineering, University of Pretoria, 2006
- 2nd Prize Winner for Zdenek Burainec Memorial Award, 2005, Italy
- South African Institution of Chemical Engineers (SAIChE)/Chemical Technology Competition, 3rd Prize (2005)
- South African Institution of Chemical Engineers (SAIChE)/Chemical Technology Competition, First Prize (2004)
- Star Performer of the year Award (Sastech) (2003)
- Commonwealth Scholarship Award (1999)
- V.G. Jenson Price for the Best Deserving Student in Chemical Engineering (1992)
- Finalist, NSTF Young Black Researcher Award for Outstanding Contribution in Science, Engineering and Technology, in the last two to five years, 2005
- Finalist, NSTF Young Black Researcher Award for Outstanding Contribution in Science, Engineering and Technology, in the last two to five years, 2004
- Unilever Scholarship Award (1991-1994)

- Deans Commendation 1st Semester (UND, 1991)
- Deans Commendation 2nd Semester (UND, 1991)
- Deans Commendation 1st Semester (UND, 1992)
- Deans Commendation 2nd Semester (UND, 1992)

EMPLOYMENT HISTORY

Full-time

University of Pretoria; Full Professor (2009 -)

University of Pretoria; Associate Professor (2004 - 2008)

Sasol Technology; Technology Leader: Optimization and Integration (2002/03 - 2003/12)

Dow AgroSciences; Senior Engineer (1996 – 1999)

Unilever; Junior Process Engineer (1994 – 1996)

Part-time

University of Pannonia, Hungary; Associate Professor (2005 -)

University of Manchester Institute of Science and Technology, UK (2000)

AspenTech Warrington, UK (1999)

University of Natal, South Africa (1997 & 1998)

University of Natal, South Africa (1992 – 1993; 1994)

OTHER SCHOLARLY ACTIVITIES

Session Chair in international conferences

- Session Chairman (Industrial Application & Optimal Design) for CHISA Conference in Prague, Czech Republic, 2004.
- Session Chairman (Batch Processes) for PRES 2005 Conference, Giardini di Naxos, Italy.
- Session Chairman (Industrial & Experimental Studies) for CHISA Conference in Prague, Czech Republic, 24 – 31 August 2006.
- Session Chairman (Modelling & Simulation) for ESCAPE 18 Conference in Lyon, France, 01 – 04 June 2008.
- Session Chairman (Batch Processes) for PRES09 Conference, 10 – 13 May, 2009, Rome, Italy
- Session Chairman (Optimization and Applications) for ESCAPE 19 Conference, 14 – 17 June, 2009, Cracow, Poland
- Session Chairman (Power System Analysis) for the 3rd IASTED Africa Conference on Power and Energy Systems, 06 – 08 September 2010, Gaborone, Botswana.
- Session Chairman (Water-Energy Independence) for the 3rd IASTED Africa Conference on Power and Energy Systems, 06 – 08 September 2010, Gaborone, Botswana.
- Panel Session Organizer (Water-Energy Independence Session with Prof Toshko Zhelev, University of Limerick, Ireland) for the 3rd IASTED Africa Conference on Power and Energy Systems, 06 – 08 September 2010, Gaborone, Botswana.
- Session Chairman (Natural Convection), 8th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics, 11 – 13 July 2011, Pointe Aux Piments, Mauritius.

Session Chair in national conferences

- Session Chairman (Process Design and Optimization) for SACEC, 20 -22 September 2006.

- Session chair for the African Pinch Seminar (2002).
- Chairman of the organizing committee for SAIChE Gauteng Branch Symposium, 2006, 2007

International Scientific Committee membership in international conferences

- International Scientific Committee member for PRES 2004 Conference in Prague, Czech Republic.
- International Scientific Committee member for PRES 2005 Conference, Giardini di Naxos, Italy.
- International Scientific Committee member for PRES 2006 Conference in Prague, Czech Republic.
- International Scientific Committee member for PRES 2007 Conference, Ischia Island, Gulf of Naples
- International Scientific Committee member for European Symposium on Computer Aided Process Engineering (ESCAPE), Bucharest, Romania, 2007.
- International Scientific Committee member for European Symposium on Computer Aided Process Engineering (ESCAPE), Lyon, France, 2008.
- International Scientific Committee member for European Symposium on Computer Aided Process Engineering (ESCAPE), Krakow, Poland, 2009.
- International Scientific Committee member for International Association of Science and Technology for Development (IASTED), Pittsburgh, USA, November 7 – 9, 2011.
- International Scientific Committee member for Process Systems Engineering (PSE) conference, Singapore, July 15 – 16, 2012

Reviewer for scientific journals

- Industrial and Engineering Chemistry Research Journal
- Applied Thermal Engineering Journal
- Journal of Cleaner Production
- Information Sciences Journal
- Computers and Chemical Engineering Journal
- American institution of Chemical Engineers (AIChE) Journal
- Energy and Fuels
- Journal of Environmental Management
- Chemical Engineering Research and Design
- Chemical Engineering Science
- Chemical Product and Process Modelling
- Energy

External examiner for MEng and PhD degrees

- Appointed as an external examiner for M.ScEng (Chemical) at the University of Durban-Westville, 2003.
- Appointed as an external examiner for M.ScEng (Electrical) at University of the Witwatersrand, 2005.
- Appointed as an external examiner for M.ScEng (Chemical) at University of the KwaZulu Natal, 2006
- Appointed as an external examiner for M.ScEng (Chemical) at University of the Witwatersrand, 2007
- External examiner for PhD (Chemical Engineering), University Politecnica of Bucharest, Romania, 2007
- Appointed as an external examiner for M.ScEng (Chemical) at University of the

Witwatersrand, 2008

External examination for engineering courses in other institutions

- External examiner for Electrical/Information Engineering Design Course for 2004, Wits University.
- External examiner for Optimisation Methods course in Electrical/Information Engineering, 2004, Wits University.
- External examiner for Mass Transfer course in Chemical Engineering, 2007 - , Wits University.
- External examiner for Transport Phenomena course in Chemical Engineering, 2010 - , Wits University.
- External examiner for Mass Transfer course in Chemical Engineering, 2009 - , University of KwaZulu-Natal.

Other Professional contributions

- Judge for Young Scientists Expo (2003).
- Invited as a role model to a programme organized by Professor Jill Bradbury at the University of KwaZulu Natal (2003).
- An invited guest to an inspirational National Radio Show hosted by Given Mkhari (12/02/2004).
- Member of the Professional Advisory Committee (Chemical Engineering) for the Engineering Council of South Africa (Vice-Chairman).
- National Council member for the South African Institution of Chemical Engineers (SAIChE).
- Invited as a role model to a programme organized by Professor Jill Bradbury at the University of KwaZulu Natal (2004).
- Appointed reviewer for Water Research Commission Proposal (2005)
- Member of the evaluation panel for NRF masters and doctoral DoL Scarce Skills Scholarships, 2004.
- Member of the evaluation panel for NRF New Equipment Programme (NEP), 2005.
- Member of the National Laser Center Rental Pool Program review panel, 2005 (5-day review).
- Reviewer for the South African Chemical Engineering Congress (SACEC), 20 -22 September, 2006.
- Invited as a speaker (role model) at the National Science Olympiad Awards for 2006.
- Invited speaker at the National Society for Black Engineers Conference, 25 – 28 September 2007.
- Invited speaker on a TV Programme (Asikhulume) on Science in South Africa, 2007.
- Advisor for the National Energy Regulator of South Africa, 2008.

OTHER PROFESSIONAL ACTIVITIES AND AFFILIATIONS

- Member of NECSA board of directors.
- Member of the PELCHEM (a division of NECSA) board of directors.
- Member of the Academy of Sciences of South Africa (MASSAf).
- Fellow of the Water Institute of South Africa (FWISA).
- Professional Engineer (Reg. No. 20000283). Registered with Engineering Council of South Africa (ECSA) on 16 November 2000.
- Member of the South African Institute of Chemical Engineers (MSAIChE).
- Member of the Editorial Board of *Chemical Transactions Journal*.
- Consulting editor for Chemical Technology magazine.

REFERENCES:

1. Prof. Toshko Zhelev, University of Limerick, Ireland (toshko.zhelev@ul.ie)
2. Dr. Mamdouh Gadalla, Universitat Rovira i Virgili, Spain, (mamdouh.gadalla@urv.cat)
3. Dr. Dominic Foo, University of Nottingham Malaysia Campus, (dominic.foo@nottingham.edu.my)
4. Prof. Mahmoud El-Halwagi, Professor and Holder of the McFerrin Professorship, The Artie McFerrin Department of Chemical Engineering, Texas A&M University, El-Halwagi@TAMU.edu
5. Prof. Santanu Bandyopadhyay, Department of Mechanical Engineering, India Institute of Technology (IIT), Bombay, santanu@me.iitb.ac.in
6. Prof. Raymod Tan, Department of Chemical Engineering, De La Salle Univeristy, Manila, Philippines, Raymond.tan@dlsu.edu.ph
7. Dr. Jhuma Sadhukhan, School of Chemical Engineering & Analytical Science (CEAS), The University of Manchester, jhuma.sadhukhan@manchester.ac.uk
8. David Hui, Associate Professor, Chemical and Bio-Molecular Engineering Dept., Hong Kong University of Science and Technology, kehui@ust.hk, Tel: +852 2358 7137 Fax: +852 2358 0054