PERSONAL DATA

Stavros Papadokonstantakis
Birth date: 23/08/1974
Nationality: Greek
Address: Eklandagatan 96B, 41261, Gothenburg, Sweden
Phone numbers: +46317728533
E-mail: stavros.papadokonstantakis@chalmers.se

EDUCATION

National Technical University of Athens (NTUA), PhD in Chemical Engineering (April 2006)
Dissertation: Modelling chemical processes using artificial neural networks (Prof. Dr. A.I. Lygeros)
National Technical University of Athens (NTUA), BSc-MSc (Diploma) in Chemical Engineering, (September 1998, Grade 8.6/10 (Very Good))
Dissertation: Energy production via thermochemical conversion of rural byproducts – Influence of various pre-processing methods (Prof. Dr. E.Koukios)

HONORS AND AWARDS

3.5 years full-scholarship from NTUA for the PhD research (2000-2003)
Award for best entrance exam score in the Chemical Engineering Department of NTUA (1993)

PROFESSIONAL, RESEARCH & TEACHING EXPERIENCE

Chalmers University of Technology (CUT), Gothenburg, Associate Professor (2014-today): Chemical Process Synthesis for Energy Efficiency
Swiss Federal Institute of Technology (ETH), Zurich, Senior Research Assistant (2012-2014): Sustainable Process Design and Optimization
Swiss Federal Institute of Technology (ETH), Zurich, Group leader of the "Process Design and Optimization" subdivision of the Safety and Environmental Technology Group, Institute for Chemical and Bioengineering (2006-2011)
Co-examiner of 4 PhD students and **co-supervisor** of 10 PhD and 20 MSc students
Swiss Federal Institute of Technology (ETH), Zurich, Lecturer in undergraduate and postgraduate courses (2007-today):

- Process Simulation and Flowsheeting (MSc)
- Case Studies in Process Design (MSc)
- Case Studies I-II (BSc)

American Process Inc, Atlanta, USA, **Project & Product Manager**: Pulp and paper mill modeling and energy monitoring (2003-2005)
Astrazeneca R&D., Södertälje, Sweden, Research engineer (2002): Laboratory data mining
Technical University of Brandenburg, Germany, Research Assistant (2001-2002): "Black-box modeling of aldol-condensation processes (BASF, Schwarzheide)"

INVITED SEMINAR TALKS

RWTH, Aachen (October, 2014): Towards sustainable solvent based post combustion CO2 capture

ALSTOM, Baden (March, 2014): Towards sustainable solvent based post combustion CO2 capture: From molecules to conceptual flowsheet design (CAPSOL)
Chalmers University of Technology, Gothenburg (November, 2013): Engineering and research challenges for chemical engineers in the development of biorefineries
National Technical University of Athens, Athens (May, 2010): Sustainability principles in process systems engineering
International Multidisciplinary Seminar Program, URV, Tarragona (June, 2009): Data mining and system identification
Swiss Federal Institute of Technology (ETH), Zurich (May 2007): Neural network fundamentals and applications in chemical engineering

PUBLICATIONS & CONFERENCES

Author of **22 articles** in peer-reviewed journals and **9 articles** in conference proceedings
Author of **1 chapter** in Ullman's Encylopedia of Process Systems Engineering (2010): Hazards identification on early stages of process design
Author of **1 chapter** in CACE's Sustainability of Products, Processes and Supply Chains: Theory and Applications (2015): Towards sustainable solvent-based post combustion CO2 capture: From molecules to conceptual flowsheet design
Contribution of more than **50 oral and poster presentations** in international conferences

RESEARCH PROJECTS

Swiss National Science Foundation (2014-2017): Sustainable waste and resource management to support the energy turn-around (wastEturn), Bottom-up modelling and optimization of industrial Waste-to-Energy (WtE) and resource recovery systems
FP7-PEOPLE, (2013-2016)**:** Marie-Curie Initial Training Networks (ITN), for the promotion of renewable energy systems engineering (RENESENG)
Lonza, Visp (2013-2016): Development of optimization-based approaches for industrial waste management
F. Hoffmann La-Roche, Kaiseraugst (2012-2015): Statistical process control and quality improvement in galenic pharmaceutical formulation
Swiss National Science Foundation (2011-2014): A computer aided platform to support the optimal implementation of wood-based biorefineries
FP7-Energy (2011-2014)**:** High-efficiency post-combustion solvent-based capture processes (CAPSOL)
Swiss Federal Office of Energy/ Federal Office of Environment (2009-2012): Estimation of mass and energy flows in the chemical industry
Swiss Federal Office of Energy (2009-2011): Implementation of monitoring tool for targeting energy saving potential in batch chemical plants
Institute for Environmental-informatics, Hamburg GmbH (2008-2014): Sustainability assessment of chemical synthesis in development phases
Swiss National Science Foundation/Swiss Federal Office of Energy (2007-2010): Advanced integration of energy conversion, production processes, and waste management
BASF, Schweizerhalle (2007-2010): Systematic retrofit methodology for chemical batch processes to improve economic and environmental performance

MISCELLANEOUS

Professional chemical engineering license of Technical Chamber of Greece since 1999
Senior Member of the American Institute of Chemical Engineers since 2014
Languages: Greek (Mother language), English (Fluent, Cambridge Certificate), German (Very good, GDS, Goethe Institute)

LIST OF PUBLICATIONS

(in scientific journals)

1. Michalopoulos, J., Papadokonstantakis, S., Arampatzis, G., Lygeros, A., **2001**. Modelling of an industrial fluid catalytic cracking unit using neural networks. *Chemical Engineering Research and Design* 79 (A2), 137.

2. Bollas, G., Papadokonstantakis, S., Michalopoulos, J., Arampatzis, G., Lappas, A., Vasalos, I., Lygeros, A., **2003**. Using hybrid neural networks in scaling up an FCC model from a pilot plant to an industrial unit. *Chemical Engineering & Processing* 42, 697.

3. Bollas, G., Papadokonstantakis, S., Michalopoulos, J., Arampatzis, G., Lappas, A., Vasalos, I., Lygeros, A., **2004**. A computer-aided tool for the simulation and optimization of the combined HDS-FCC processes. *Chemical Engineering Research and Design* 82 (A7), 881.

4. Papadokonstantakis, S., Machefer, S., Schnitzlein, K., Lygeros, A., **2005**. Variable selection and data pre-processing in NN modelling of complex chemical processes. *Computers and Chemical Engineering* 29, 1647.

5. Papadokonstantakis, S., Lygeros, A., Jacobsson, S., **2005**. Comparison of recent methods for inference of variable influence in neural networks. *Neural Networks* 19, 500.

6. Richner, G., Neuhold Y-M., Papadokonstantakis, S., Hungerbühler, K., **2008**. Temperature oscillation calorimetry for the determination of the heat capacity in a small-scale reactor. *Chemical Engineering Science* 63, 3755.

7. Szijjarto, A., Papadokonstantakis, S., Fischer U., Hungerbühler K., **2008**. Bottom-up modeling of the steam consumption in multipurpose chemical batch plants focusing on identification of the optimization potential. *Industrial and Engineering Chemistry Research* 47, 7323.

8. Wernet, G., Hellweg, S., Fischer, U., Papadokonstantakis S., Hungerbühler K., **2008**. Molecular-structure-based models of chemical inventories using neural networks. *Environmental Science and Technology* 42, 6717.

9. Wernet, G., Papadokonstantakis, S., Hellweg, S., Hungerbühler, K. **2009**. Bridging data gaps in environmental assessments: Modeling of fine and basic chemical production. *Green Chemistry* 11, 1826.

10. Bumann, A.A., Papadokonstantakis, S., Sugiyama, H., Fischer, U., Hungerbühler, K., **2010**. Evaluation and analysis of a proxy indicator for the estimation of gate-to-gate energy consumption in the early process design phases: The case of organic solvent production. *Energy* 35, 2407.

11. Albrecht, T., Papadokonstantakis, S., Sugiyama, H., Hungerbühler, K., **2010**. Demonstrating multi-objective screening of chemical batch process alternatives during early design phases. *Chemical Engineering Research and Design* 88, 529.

12. Bumann, A.A., Papadokonstantakis, S., Fischer U., Hungerbühler, K., **2011**. Investigating the use of path flow indicators as optimization drivers in batch process retrofitting. *Computers and Chemical Engineering* 35, 2767.

13. Banimostafa, A., Papadokonstantakis, S., Hungerbühler, K., **2012**. Evaluation of EHS hazard and sustainability metrics during early process design stages using principal component analysis. *Process Safety and Environmental Protection* 90, 8.

14. Rerat, C., Papadokonstantakis, S., Hungerbühler, K., **2012**. Estimation and analysis of energy utilities consumption in batch chemical industry through thermal losses modeling. *Industrial and Engineering Chemistry Research* 51, 10416.

15. Szijjarto, A., Papadokonstantakis, S., Hungerbühler, K., **2012**. Model-based identification and analysis of the energy saving potential in batch chemical processes. *Industrial and Engineering Chemistry Research* 51, 11170.

16. Banimostafa, A., Nguyen, T.T.H., Kikuchi, Y., Papadokonstantakis, S., Sugiyama, H., Hirao, M., Hungerbühler, K., **2012**. Safety, health, and environmental assessment of bioethanol production from sugarcane, corn, and corn stover. *Green Processing and Synthesis* 1*,* 449.

17. Rerat, C., Papadokonstantakis, S., Hungerbühler, K., **2013**. Integrated waste management in batch chemical industry based on multi-objective optimization. *Journal of the Air and Waste Management* 63, 349.

18. Pereira, C., Papadokonstantakis, S., Rerat, C., Hungerbühler, K., **2013**. Industrial documentation-based approach for modeling the process steam consumption in chemical batch plants. *Industrial and Engineering Chemistry Research,* 52**,** 15635.

19. Papadokonstantakis, S., Hungerbühler, K., Sennhauser, M., **2013**. The success of Switzerland's chemicals and pharmaceuticals industries. *Chemical Engineering Progress* 109, 31.

20. Capón-García, E., Papadokonstantakis, S., Hungerbühler, K., **2014**. Multi-objective optimization of industrial waste management in chemical sites coupled with heat integration issues. *Computers and Chemical Engineering,* 62**,** 21.

21. Kikuchi, Y., Hirao, M., Sugiyama, H., Papadokonstantakis, S., Hungerbühler, K., Ookubo, T., Sasaki, A., **2014**. Design of recycling system for poly (methyl methacrylate) (PMMA). Part 2: Process hazards and material flow analysis. *International Journal of Life Cycle assessment*, available online, 19, 317.

22. Morales, M., Dapsens, P.Y., Giovinazzo, I., Witte, J., Mondelli, C., Papadokonstantakis, S., Hungerbühler, K., Perez-Ramirez, J., **2014**. Environmental and economic assessment of lactic acid production from glycerol using cascade bio- and chemocatalysis. *Energy and Environmental Science*, available online, DOI: 10.1039/C4EE03352C

LIST OF PUBLICATIONS

(in books)

23. Papadokonstantakis, S., Siddharta, A., Sugiyama, H., Hungerbuhler, K., **2008**. Uncertainty patterns and sensitivity analysis of an indicator based process design framework. *Computer-Aided Chemical Engineering* 25, 145.

24. Bumann, A.A., Papadokonstantakis, S., Fischer U., Hungerbühler, K., **2010**. Optimisation of chemical batch process within a systematic retrofit framework including evaluation of historical process data. *Chemical Engineering Transactions* 21, 919.

25. Szijjarto, A., Papadokonstantakis, S., Hungerbühler, K., **2010**. Energy saving potential identification in the batch chemical industry. *Design for Energy and the Environment (Proceedings of the 7th International Conference on the Foundations of Computer-Aided Process Design)*, 461.

26. Rerat, C., Straehl, P., Papadokonstantakis, S., Hungerbühler, K., **2010**. Efficiency analysis of utilities use in the batch chemical industry. *Computer-Aided Chemical Engineering* 28, 1931.

27. Banimostafa, A., Papadokonstantakis, S., Hungerbühler, K., **2011**. Retrofit design of a pharmaceutical batch process considering green chemistry and engineering principles. *Computer-Aided Chemical Engineering* 29, 181.

28. Sin, G., Ghosh, K., Natarajan, S., Srinivasan R., Adhitya, A., Karimi, I.A., Papadokonstantakis, S., Hungerbühler, K., Angelo P., **2012**. Process Systems Engineering, 7. Abnormal Events Management and Process Safety. *Ullman's Encylopedia of Industrial Chemistry*.

29. Banimostafa, A., Papadokonstantakis, S., Hungerbühler, K., **2012**. Retrofit design of a pharmaceutical batch process improving green process chemistry and engineering principles. *Computer-Aided Chemical Engineering* 31, 1120.

30. Kikuchi, Y., Papadokonstantakis, S., Banimostafa, A., Sugiyama, H., Hungerbühler, K., Hirao, M., **2012**. Analysis and modeling of information required for process assessment on environment, health and safety by IDEF0 and UML. *Computer-Aided Chemical Engineering* 31, 1392.

31. Capon-Garcia, E., Papadokonstantakis, S., Hungerbühler, K., **2013**. Efficient waste management based on scheduling optimization of waste treatment plants. *Computer-Aided Chemical Engineering* 32, 949.

32. Karka, P., Papadokonstantakis, S., Hungerbühler, K., Kokossis, A., **2014**. Efficient waste management based on scheduling optimization of waste treatment plants. *Design for Energy and the Environment (Proceedings of the 8th International Conference on the Foundations of Computer-Aided Process Design)*, 543.