

## **CURRICULUM VITAE**

Athanasios Nikolakopoulos, CEng, MSc, PhD  
National Technical University of Athens  
School of Chemical Engineering  
Zografou Campus, 9, Iroon Polytechniou Str.  
GR-15780, Athens, GREECE  
Tel +30-2-10-772-3236  
Fax +30-2-10-772- 3138  
email: nikolako@mail.ntua.gr

### **EDUCATION**

- 2002-2006 National Technical University of Athens, School of Chemical Engineering, Greece  
Ph.D. in Chemical Engineering
- 2000-2001 National Technical University of Athens, School of Chemical Engineering, Greece  
MSc in Chemical Engineering
- 1996-2000 National Technical University of Athens, School of Chemical Engineering, Greece  
BSc in Chemical Engineering

### **ACADEMIC APPOINTMENTS**

- 2014-present National Technical University of Athens, School of Chemical Engineering, GR  
Teaching Staff at the Laboratories of Process Design, Process Control and  
Operations Research
- 2008-2013 Hellenic Military University – Army Academy, Mathematics and Engineering Sector,  
GR  
Lecturer, in Operations Research and Quantitative Methods
- 2014-present National Technical University of Athens, School of Chemical Engineering, GR  
Research Fellow
- 2009-2014 National Technical University of Athens, School of Chemical Engineering, GR  
Post-Doctoral Research Associate
- 2001-2006 National Technical University of Athens, School of Chemical Engineering, GR  
Doctoral Researcher

### **RESEARCH EXPERIENCE**

- 2017 - 2020 EU Environment LIFE Programme – Environment and Resource Efficiency, Project  
LIFE MATHER - "Full material and chemical monitoring data and disclosure for the  
protection of the human health and environment"
- 2017-2019 "Interreg IPA Cross-border Cooperation Programme Greece-the former Yugoslav  
Republic of Macedonia 2014-2020", Project SYMBIOSIS - "Symbiotic networks of  
bio-waste sustainable management"
- 2017-2019 Horizon 2020 - Bio-based Industries Joint Technology Initiative (BBI-JTI), Research  
project - 745719: BIOPEN - "Accelerating and supporting business development of

bio-based industries and downstream sectors”

- 2015-2018 Horizon 2020 - Research and Innovation Framework Programmer, Research project - 641942-2: RESYNTEX - “A new circular economy concept: from textile waste towards chemical and textile industries feedstock”  
Senior Researcher
- 2013-2017 FP7 Marie Curie European Research project – 607415: RENESENG - “Renewable Systems Engineering in Biorefinery Process Design”  
Senior Researcher – Invited Lecturer
- 2013-2017 7<sup>th</sup> European Framework Programme for Research and Technological Development (FP7) Research project - 613870: D Factory - “The Micro Algae Biorefinery”  
Senior Researcher
- 2011-2015 National Strategic Reference Framework (NSRF) - COOPERATION 2011 Research program 11ΣΥΝ\_6\_528: AI4b - “Accountable IT Infrastructures for Optimizing Supply Chains in Bioenergy Symbiotic Networks.”  
Senior Researcher
- 2009-2014 7<sup>th</sup> European Framework Programme for Research and Technological Development (FP7) Research project - 241566: BIOCORE – “Biocommodity refinery”, Process Flowsheeting, Integration and Synthesis for the design of future Biorefineries  
Post-Doctoral Research Associate
- 2002-2005 General Secretariat for Research and Technology (GSRT) - Project -01ED38: “Systems Development for the Forecasting of Sales Volume and Production Planning Using Methodologies of Artificial Intelligence” with the collaboration of FAGE S.A. Dairy food industry.  
Doctoral Research Engineer
- 2002-2004 Project THALIS -65117900 – National Technical University of Athens “Solving Mixed Integer and non-Linear Programming Problems using Genetic Algorithms”  
Doctoral Research Engineer
- 2000-2001 National Technical University of Athens, School of Chemical Engineering, GR  
MSc Research Engineer
- 2000-2001 TITAN S.A. Cement Industry, Athens.  
Mathematical Simulation of the rotating kilns’ operation for the production of Portland type cement.  
Junior Researcher

## **PUBLICATIONS**

### ***Academic Theses***

Athanassios Nikolakopoulos, “Metaheuristic Algorithms for the Solution of Non-Linear and Complex Combinatorial Optimization Problems”, PhD Thesis, National Technical University of Athens, Department of Chemical Engineering, 2006.

Athanassios Nikolakopoulos, “Application of Genetic Algorithms for the Solution of Production Planning Optimization Problems”, Master’s Thesis, National Technical University of Athens, Department of Chemical Engineering, 2001.

## ***Journal publications***

1. Nikolakopoulos, A., Ganas, I. Economic model predictive inventory routing and control (2017) *Central European Journal of Operations Research*, pp. 1-23. Article in Press.
2. Nikolakopoulos, A. An economic model predictive approach for inventory routing and control with time windows constraints: Application in the distribution of industrial gases (2016) *Chemical Engineering Transactions*, 52, pp. 925-930.
3. Nikolakopoulos, A., Faskiotis, D., Kokossis, A. Cascade models for targeting and synthesis of total water networks (2016) *Chemical Engineering Transactions*, 52, pp. 943-948.
4. Nikolakopoulos, A., Faskiotis, D., Kokossis, A. Integrated Transshipment Models for Synchronous Screening of Treatment Technologies and Targeting of Fresh Water and Recycle Flows (2016) *Computer Aided Chemical Engineering*, 38, pp. 715-720.
5. Nikolakopoulos, A., Kokossis, A. A problem decomposition approach for developing total water networks in lignocellulosic biorefineries (2015) *Process Safety and Environmental Protection*, . Article in Press.
6. Nikolakopoulos, A., Kokossis, A. A Mathematical Programming Targeting Method to Select Treatment Technologies Ahead of Design (2015) *Computer Aided Chemical Engineering*, 37, pp. 1091-1096. Cited 1 time.
7. Koufoulioulios, D., Nikolakopoulos, A., Pyrgakis, K., Kokossis, A. A mathematical decomposition for the synthesis and the application of total site analysis on multi-product biorefineries (2014) *Computer Aided Chemical Engineering*, 34, pp. 549-554. Cited 2 times.
8. Nikolakopoulos, A., Thomaidis, L., Kokossis, A. Mathematical programming shortcut screening models for the design of integrated waste treatment systems (2014) *Computer Aided Chemical Engineering*, 34, pp. 381-386. Cited 3 times.
9. Nikolakopoulos, A., Karagiannakis, P., Galanis, A., Kokossis, A. A water saving methodology for the efficient development of biorefineries (2012) *Computer Aided Chemical Engineering*, 30, pp. 7-10. Cited 7 times.
10. Mountraki, A.D., Nikolakopoulos, A., Mlayah, B.B., Kokossis, A.C. BIOCORE- A systems integration paradigm in the real-life development of a lignocellulosic biorefinery (2011) *Computer Aided Chemical Engineering*, 29, pp. 1381-1385. Cited 6 times.
11. Nikolakopoulos, A., Sarimveis, H. A metaheuristic approach for the sequencing by hybridization problem with positive and negative errors (2008) *Engineering Applications of Artificial Intelligence*, 21 (2), pp. 247-258. Cited 5 times.
12. Nikolakopoulos, A., Sarimveis, H. A threshold accepting heuristic with intense local search for the solution of special instances of the traveling salesman problem (2007) *European Journal of Operational Research*, 177 (3), pp. 1911-1929. Cited 18 times.
13. Sarimveis, H., Nikolakopoulos, A. A line up evolutionary algorithm for solving nonlinear constrained optimization problems (2005) *Computers and Operations Research*, 32 (6), pp. 1499-1514. Cited 39 times.

### ***Book chapters***

1. Athanassios Nikolakopoulos. A Metaheuristic Reconstruction Algorithm for Solving Bi-level Vehicle Routing Problems with Backhauls for Army Rapid Fielding. (2015) Operations Research/ Computer Science Interfaces Series, 56, pp. 141-157.
2. Athanassios Nikolakopoulos. Army Rapid Fielding by Optimizing Order Picking Routes in Warehouses with Parallel Aisles – Implementation in a Real Case Study. Journal of Computations & Modelling, vol.3, no.4, 2013, 137-163.

### ***Conference publications***

1. Athanassios Nikolakopoulos, Antonis Kokossis. Cascade models for the synthesis of total water networks. 11<sup>th</sup> Panellenic Scientific Conference of Chemical Engineering, 25-27 May 2017, Thessaloniki, Greece.
2. Athanassios Nikolakopoulos. Time constrained model predictive inventory routing and control in industrial gas distribution systems. 11<sup>th</sup> Panellenic Scientific Conference of Chemical Engineering, 25-27 May 2017, Thessaloniki, Greece.
3. Athanassios Nikolakopoulos. An economic model predictive approach for inventory routing and control with time windows constraints: Application in the distribution of industrial gases. 22<sup>nd</sup> International Congress of Chemical and Process Engineering CHISA 2016, 19<sup>th</sup> Conference on Process Integration, Modelling and Optimization for Energy Saving and Pollution Prevention PRES 2016. 27-31 August 2016, Prague, Czech Republic.
4. Athanassios Nikolakopoulos, Dimitrios Faskiotis, Antonis Kokossis. Cascade models for targeting and synthesis of total water networks. 22<sup>nd</sup> International Congress of Chemical and Process Engineering CHISA 2016, 19<sup>th</sup> Conference on Process Integration, Modelling and Optimization for Energy Saving and Pollution Prevention PRES 2016. 27-31 August 2016, Prague, Czech Republic.
5. Alkiviadis Stamatopoulos, Athanassios Nikolakopoulos, Charalambos Sarimveis. A model predictive method for routing and inventory control at final consumption points: Application to the distribution of industrial gases. 4<sup>th</sup> Student Conference EEEE: Operations Research – Challenges and Opportunities Inside Crisis. 17-18 December 2015, Athens, Greece.
6. Athanassios Nikolakopoulos, Ioannis Ganas. Inventory routing and control models for the distribution of industrial gases: A multiperiod deterministic and a dynamical predictive approach (2015) Proceedings of the 13th International Symposium on Operational Research, SOR 2015, pp. 72-78.
7. Athanassios Nikolakopoulos, Antonis Kokossis. A Mathematical Programming Targeting Method to Select Treatment Technologies Ahead of Design. Krist V. Gernaey, Jakob K. Huusom and Rafiqul Gani (Eds.), 12th International Symposium on Process Systems Engineering and 25th European Symposium on Computer Aided Process Engineering. 31 May – 4 June 2015, Copenhagen, Denmark © 2015
8. Athanassios Nikolakopoulos, Antonis Kokossis. Targeting and Design for Minimum Water Consumption in Lignocellulosic Biorefineries. In the 23rd European Biomass Conference and Exhibition Online Proceedings, 1-4 June 2015, Vienna, Austria.

9. Athanassios Nikolakopoulos, George Sykokis and Haralambos Sarimveis. Order Picking and SKU Assignment Optimization Methods: Case Studies for Rectangular Warehouses. 12th Student Conference on Management Science and Technology. 15 May 2015, EEDE Conference Center, Athens, Conference Proceedings.
10. Athanassios Nikolakopoulos, Antonis Kokossis. Targeting Water Flows and Screening Waste Treatment Technologies Through Integrated Transshipment Models. 10<sup>th</sup> Panhellenic Scientific Conference of Chemical Engineering, 4-6 June 2015, Patra, Greece.
11. Athanassios Nikolakopoulos, Lazarus Thomaidis, Antonis Kokossis. Mathematical Programming Shortcut Screening Models for the Design of Integrated Waste Treatment Systems. Mario Eden, John D. Sirola and Gavin P. Towler (Editors) Proceedings of the 8th International Conference on Foundations of Computer-Aided Process Design – FOCAPD 2014, pp. 381-386.
12. A. Nikolakopoulos, A. Galanis, P. Karagiannakis, A. Kokossis. Computational technologies for the development of water efficient biorefineries. 22nd European Biomass Conference and Exhibition - EU BC&E 2014, 23-26 June 2014, Hamburg, Germany.
13. Dimitrios Koufolioulis, Athanassios Nikolakopoulos, Konstantinos Pyrgakis, Antonis Kokossis. A Mathematical Decomposition for the Synthesis and the Application of Total Site Analysis on Multi-product Biorefineries. In Mario Eden, John D. Sirola and Gavin P. Towler (Editors) Proceedings of the 8th International Conference on Foundations of Computer-Aided Process Design – FOCAPD 2014, pp. 549-554.
14. Athanassios Nikolakopoulos, Alexandros Galanis, Panagiotis Karagiannakis and Antonis Kokossis. An Integrated Targeting and Design Method for Saving Water in 2nd Generation Biorefineries. 13AICHE Annual Meeting, 3-8 November 2013, San Francisco, California, USA.
15. A. Nikolakopoulos, A. Galanis, K. Karagiannakis, A. Kokosis. Integrated method for targeting and design for maximum water savings in 2<sup>nd</sup> generation biorefineries. 9<sup>th</sup> Panhellenic Scientific Conference of Chemical Engineering, 23-25 May 2013, Athens, Greece.
16. Marinella Tsakalova, Athanassios Nikolakopoulos and Antonis Kokossis. On the systematic synthesis screening and integration of real-life biorefineries. Biorefinery for Food, Fuel and Materials, 7-10 April 2013, Wageningen, Netherlands.
17. Athanassios Nikolakopoulos, Ioannis Ganas, Ioannis Konstantaras, Konstantina Skouri. A Hybrid Metaheuristic-Dynamic Programming Algorithm for Integrated Optimization of Manual Order Picking and Sorting Warehouse Operations, 25<sup>th</sup> European Conference on Operational Research, 8-11 July 2012, Vilnius, Lithuania.
18. Marinella Tsakalova, Athanassios Nikolakopoulos and Antonis Kokossis. On the systematic synthesis screening and integration of real-life biorefineries. In Conference Proceedings of the 12AICHE - 2012 AICHE Annual Meeting, 28 October – 2 November, 2012, Pittsburgh,

Pennsylvania, USA .

19. A. Mountraki, A. Nikolakopoulos, B. Benjelloun Mlayah, Antonis C. Kokossis. BIOCORE– A systems integration paradigm in the real-life development of a lignocellulosic biorefinery. 21st European Symposium on Computer Aided Process Engineering – ESCAPE 21 E.N. Pistikopoulos, M.C. Georgiadis and A.C. Kokossis (Editors), Elsevier B.V. (2011) Chalkidiki, Greece. Conference proceedings, pp. 1381-1385.
20. A.D. Mountraki, A.Nikolakopoulos, B.B.Mlayah, A. C. Kokossis. BIOCORE - Synthesis of Novel and Conventional Biomass Conversion Processes towards the sustainable Biorefinery of the Future. 8th European Congress of Chemical Engineering, Berlin, Germany, (2011). Conference proceedings.
21. Aikaterini D. Mountraki, Athanassios Nikolakopoulos, Konstantinos A. Pyrgakis, Bouchra Benjelloun Mlayah and Antonis C. Kokossis. BIOCORE - On a Paradigm for the Design and Synthesis of Real-Life Biorefineries. AIChE 2011 Annual Meeting - International congress on energy 2011, Conference proceedings.
22. Aikaterini Mountraki, Athanassios Nikolakopoulos, B. Benjelloun Mlayah, Antonis Kokossis, Konstantinos Pyrgakis. Biocore – A Modeling approach for the integrated design and development of a real lignocellulosic biorefinery. 8<sup>th</sup> Panhellenic Scientific Conference of Chemical Engineering, 26-28 May 2011, Thessaloniki, Greece.
23. Nikolakopoulos A, Sarimveis H. A TSP Formulation of the DNA Sequencing Problem. 2nd Multidisciplinary International Conference on Scheduling: Theory and Applications, N.Y., USA, (2005). Conference proceedings p. 8 - 10.
24. Nikolakopoulos A, Sarimveis H. A Heuristic Approach to the Vehicle Routing Problem with Time Windows and Simultaneous Pick-up and Delivery. Odysseus 2006, Third International Workshop on Freight Transportation and Logistics, Altea, Spain, (2006). Conference proceedings p. 263 - 266.

### ***Review and editorial services***

Scientific Journals:

- Computers and Operations Research
- European Journal of Operational Research
- International Journal of Production Research
- International Journal of Systems Science
- Applied Mathematical Modelling
- Central European Journal of Operations Research

Books:

- Chemical Process: Design and Integration, Wiley

## **Courses Taught**

### ***Undergraduate Courses:***

- 2008 – 2013      Operations Research and Quantitative Methods, Department of Mathematics and Engineering, Hellenic Military Academy
- 2012 - 2013      Supply Chain Management, Department of Mathematics and Engineering, Hellenic Military Academy

### ***Laboratory Teaching in undergraduate courses:***

- 2010 - present      Chemical Process Design and Plant Analysis – Process Simulation Laboratory in Aspen Plus, School of Chemical Engineering, NTUA
- 2010 - present      Computational Methods of Analysis and Design - Laboratory in GAMS, Aspen Plus, School of Chemical Engineering, NTUA
- 2010 - present      Clean Industries and Life Cycle Thinking, School of Chemical Engineering, NTUA
- 2001 - present      Chemical Process Control – Laboratory in MatLab and Simulink, School of Chemical Engineering, NTUA
- 2001 - present      Advanced Process Control – Laboratory in MatLab and Simulink, School of Chemical Engineering, NTUA
- 2010 - present      Operations Research – Laboratory in LINDO, School of Chemical Engineering, NTUA

### ***Co-Supervised Theses***

- 2017      Xristos Fakas, Economic model predictive control for combined biological phosphorus and nitrogen removal wastewater treatment processes, Master's Thesis, NTUA
- 2015      Alkiviadis Stamatopoulos, Methodologies of synchronized optimization of vehicle Fleet routing and inventory control at final consumption points, Master's Thesis, NTUA
- 2015      Dimitrios Faskiotis, Method for synchronized selection of water-treatment processes and calculation of targets for clean water flows and recycles, Master's Thesis, NTUA
- 2014      George Sykokis, Development of a hybrid algorithm for optimal allocation of products in warehouses, Master's Thesis, NTUA

### ***Honors and awards***

- 2006      Scientific Publication Award from the Thomaidis Foundation for the paper: Computers and Operations Research (2005), 32 (6), pp. 1499-1514.
- 2008      Scientific Publication Award from the Thomaidis Foundation for the paper: European Journal of Operational Research (2007), 177 (3), pp. 1911-1929.

2009 Scientific Publication Award from the Thomaidis Foundation for the paper: Engineering Applications of Artificial Intelligence (2008), 21 (2), pp. 247-258.

### **Professional Memberships**

2000-present: Member of the Greek Technical Chamber (Chartered engineer)

2001-present: Member of the Greek Association of Chemical Engineers

### **Language Skills**

- Greek (Mother language)
- English
- French
- Italian (Basic command)

### **Computers Skills**

#### ***Programming Languages:***

- Fortran
- Visual Basic
- MatLab programming language

#### ***Optimization Software:***

- General Algebraic Modeling System (GAMS)
- LINGO
- LINDO

#### ***Mathematical packages:***

- Mathematica
- MatLab

#### ***Simulation Software:***

- Aspen Plus
- Simulink
- Aspen Dynamics
- HYSYS