

Christos N. Chatzidoukas

PERSONAL INFORMATION

Profession	Chemical Engineer
Date of birth:	1 st of May, 1976
Nationality:	Greek
E-mail:	chatzido@auth.gr

EDUCATION

Dates (from – to)	October 1999-October 2003 (Postgraduate studies)
Name and type of organisation providing education and training:	IMPERIAL COLLEGE LONDON, UK, DEPARTMENT OF CHEMICAL ENGINEERING, CENTRE FOR PROCESS SYSTEMS ENGINEERING (CPSE)
Title of qualification awarded:	PH.D.-2004 Doctor of Philosophy of the University of London & Diploma of Membership of the Imperial College Thesis Title: “ Control and Dynamic Optimisation of Polymerization Reaction Processes ” <u>1st Supervisor:</u> Professor .E.N. Pistikopoulos <u>2^o Supervisor:</u> Professor J.D. Perkins
Principal subjects/occupational skills covered:	Dissertation, teaching assistance, commitments related to the European Research Projects PolyPROMS and OPT-ABSO
Dates (from – to)	October 1993-October 1998 (Undergraduate studies)
Name and type of organisation providing education and training:	Aristotle University of Thessaloniki, A.U.Th., Faculty of Engineering, School of Chemical Engineering
Title of qualification awarded:	Diploma in Chemical Engineering Overall grade: 9/10 (Rank in class: 1 st in the year of graduation) Diploma thesis Title: “ Kinetics and Thermodynamic Investigation of Polymerization Reactions in Supercritical Fluids ” <u>Supervisor:</u> Professor C. Kiparissides
Principal subjects:	Applied Scientific Research: PLANET Consulting S.A. (June-September 1998) Studies: “Water level restoration and cleaning of Vegoritida lake” & “Design of training course on organic farming”. Von-Karman Institute for Fluid Dynamics, Brussels, Belgium, (July-September 1997). Study: “Experimental and numerical investigation of the flow in a pipe with a restrictor”,

SCIENTIFIC & RESEARCH EXPERIENCE-ACADEMIC ACTIVITIES

Dates (from – to)	June 2016 –today
Organisation of Employment	Aristotle University of Thessaloniki, A.U.Th., Faculty of Engineering, School of Chemical Engineering, Sector: Analysis, Design & Control of Chemical Processes (S.A.D.C.C.P.)
Occupation or position held	Assistant Professor

<i>Dates (from – to)</i>	June 2010 - June 2016
<i>Organisation of Employment</i>	Aristotle University of Thessaloniki, A.U.Th., Faculty of Engineering, School of Chemical Engineering, Sector: Analysis, Design & Control of Chemical Processes (S.A.D.C.C.P.)
<i>Occupation or position held</i>	<i>Lecturer</i>
Academic Field	"Dynamic Modelling, Control and Optimisation of Polymerization and Biochemical Reaction Processes"
<i>Main activities and responsibilities</i>	
<u>Undergraduate courses</u>	<ol style="list-style-type: none"> 1. Process control (Acad. year: 2010-today) 2. Dynamic Process Simulation (Acad. year: 2012-today) 3. Computer Applications in Chemical Engineering (Acad. year: 2010-today) 4. Chemical Engineering Laboratory II (Acad. year: 2010-today)
<u>Seminars</u>	Training on the use of MATLAB as a tool for Process Control and Dynamic Process Simulation (Acad. year: 2011-today)
<u>Evaluation Committees of PhD Candidates</u>	<ol style="list-style-type: none"> 1. <i>Aikaterini Rouptsiou, School Engineering Department, A.U.Th., "In vitro and in vivo study of natural phenols and flavonoids biological activity", (Three-part evaluation committee member, in progress)</i> 2. <i>Paraskeui Kamaterou, School of Chemical Engineering, A.U.Th., «Sustainable algal biorefinery. Thermochemical treatment of biomass and biorefinery wastes for the production of biofuels and biochemicals with simultaneous CO₂ capture», (Three-part evaluation committee member, in progress)</i> 3. <i>Evangelos Handakas, School of Chemical Engineering, A.U.Th., "Development of computational tools for the estimation of impacts on human health from exposure to environmental contaminants", (Seven-part evaluation committee member, December 2017)</i> 4. <i>Theodoros Damrtzis, School of Mechanical Engineering, A.U.Th. "Optimal design and operability of solvent-based post combustion CO₂ capture processes", (Seven-part evaluation committee member, July 2016).</i> 5. <i>Eleutherios Andriotis, School of Chemistry, A.U.Th., "Use of D-limonene as monomer in polymerization reactions and filler in conventional polymers", (Seven-part evaluation committee member, June 2016)</i> 6. <i>Chrysa Gkementzoglou, School of Chemical Engineering, A.U.Th., "Synthesis of hybrid membranes for the removal of organic pollutants from water", (Seven-part evaluation committee member, May 2014).</i> 7. <i>Eirini Kretza, School of Chemical Engineering, A.U.Th., "Experimental study of the enzymes and PHAs production by thermophilic and</i>

mesophilic microorganism”, (Seven-part evaluation committee member, December 2011)

8. *Ioannis Penoglou*, School of Chemical Engineering, A.U.Th., “Microbial production of biodegradable poly-3-hydroxybutyrate with targeted molecular properties: Experimental optimisation and mathematical modelling”, (Seven-part evaluation committee member, October 2011)

9. *Ioannis Papas*, School of Forestry and Natural Environment, A.U.Th., “Evaluation of the potential of meadow grasses in bioenergy production”, (Seven-part evaluation committee member, October 2011)

Supervision of Diploma Thesis

1. *Maria Trikalioti*, School of Chemical Engineering, A.U.Th., “Experimental validation of the process intensification strategy by the epoxidation of oleic sunflower oil by performic acid generated in situ”, (In collaboration with École nationale supérieure des industries chimiques, Université de Lorraine, *In Progress*).

2. *Paraksevi Psachoulia*, School of Chemical Engineering, A.U.Th., “Effect of the monochromatic LED illumination on the microalgae cultures growth and productivity of desired products. An experimental investigation in a lab-scale photobioreactor” (March 2018).

3. *Evgenios Karasavvas*, School of Chemical Engineering, A.U.Th., “Dynamic optimisation of the bacterial production of poly-3-hydroxybutyrate in fed-batch and continuous bioreactors”, (October, 2017)

4. *Stefania Geladari*, School of Chemical Engineering, A.U.Th., “Experimental investigation of the microbial production of the biodegradable poly-3-hydroxybutyrate (PHB) for culture performance mapping under selected operating profiles”, (March, 2016).

5. *Stefanos Zaharos*, School of Chemical Engineering, A.U.Th., “Techno-economic analysis and economic feasibility study of a microalgae-cultivation industrial plant for the production of biochemical products”, (July, 2015)

6. *Aikaterini Davari*, School of Chemical Engineering, A.U.Th., “Experimental investigation of the cultivation of *stichococcus sp.* microalgal species in a lab-scale photobioreactor for the production of biochemical products”, (November, 2014).

7. *Victor Voulgaropoulos*, School of Chemical Engineering, A.U.Th., “Study and mathematical model development of the dynamic operation of a photobioreactor for microalgae cultivation”, (November, 2013).

8. *Apostolos Papapostolou*, School of Chemical Engineering, A.U.Th., “Experimental study and mathematical model simulation of oxygen mass transfer in a bioreactor for microbial cultures” (November, 2013).

Administrative Activities-Member of School's Committees

- Postgraduate Programme Reformation (Tentative Committee)
- Programme of Studies and Undergraduate Matters, (Acad. year: 2016-today)

	<ul style="list-style-type: none"> • Research Policy and Research Projects, (Acad. year: 2015-today) • Student and Staff Mobility (Acad. year: 2015-today) • Security and Building Maintenance,(Acad. year: 2011-today) • Organization, Informatics and Computer Centre, (Acad. year: 2011-2016) • Evaluation and Quality Assurance of Studies, (Acad. year: 2011-2016) • Library, (Acad. year: 2011-2012)
<i>Dates (from – to)</i>	April 2006-June 2010
<i>Organisation of Employment</i>	Chemical Process Engineering Research Institute (C.P.E.R.I.) Centre for Research & Technology Hellas (CERTH), Thessaloniki
<i>Occupation or position held</i>	Research Associate
<i>Main activities and responsibilities</i>	<p>Team leader of the research working of the Greek participation in the European Collaborative Research Project “BIOPRODUCTION” focusing on the sustainable microbial/enzymic production of biopolymers from renewable resources</p> <p>Member of the coordination team and scientific committee of the project with 25 participants (European Research Institutes, Universities and Industries)</p> <p>Lab-scale experiments of microbial cultures and enzymic reactions in bioreactors and mathematical model developments for the simulation of the above processes.</p> <p>Writing up of new research proposals applying for funding in European and National Calls</p>
<i>Dates (from – to)</i>	June 2003-February 2005 & September 2005- March 2006
<i>Organisation of Employment</i>	Chemical Process Engineering Research Institute (C.P.E.R.I.) Centre for Research &Technology Hellas (CERTH), Thessaloniki
<i>Occupation or position held</i>	Postdoctoral Researcher, (Member of the research group of Prof. C. Kiparissides)
<i>Main activities and responsibilities</i>	<p>Mathematical models simulation of polymerization process</p> <p>Research under the European research project “Batch-Pro-Knowledge Driven Batch Production”.</p> <p>Business plan for the foundation of a spin-off company for software development on industrial polymerization processes.</p> <p>Writing up of new research proposals applying for funing in European and National Calls</p>
<i>Dates (from – to)</i>	February 2004 & May 2004
<i>Organisation of Employment</i>	Ecole Polytechnique Fédérale De Lausanne (EPFL), Laboratoire D’ Automatique, Switzerland
<i>Occupation or position held</i>	Visiting Researcher (Collaboration with Prof. Dominique Bonvin & Prof. Bala Srinivasan)

<i>Main activities and responsibilities</i>	Analysis and enhancement of advanced mathematical tools for the dynamic optimal operation of polymerization process application on a real industrial polyolefin production unit
<i>Dates (from – to)</i>	October 1999 & March 2003
<i>Organisation of Employment</i>	IMPERIAL College London, Department of Chemical Engineering, Centre for Process Systems Engineering (CPSE),
<i>Occupation or position held</i>	Research Assistant (Member of the research group of Prof. E.N. Pistikopoulos)
<i>Main activities and responsibilities</i>	Research on the model-based design control and optimisation of industrial scale polymerization processes under the European research project “PolyPROMS- Development of Advanced Polymerization Process Modeling, Simulation, Design and Optimization Tools” Supervision of undergraduate students in chemical process design projects.
<i>Dates (from – to)</i>	September 1998 - September 1999
<i>Organisation of Employment</i>	Chemical Process Engineering Research Institute (C.P.E.R.I.) Centre for Research & Technology Hellas (CERTH), Laboratory of Polymer Reaction Engineering (LPRE) Thessaloniki
<i>Occupation or position held</i>	Postgraduate Researcher (Member of the research group of Prof. C. Kiparissides))
<i>Main activities and responsibilities</i>	Mathematical modelling of polymerization processes in supercritical fluids under the European research project “SUPERPOL- Polymerization and Polymer Modification in Supercritical Fluids: A novel Way for Cleaner Manufacturing of Plastics”.

FIELDS OF EXPERTISE –RESEARCH INTERSTS

- Microbial cultures and photosynthetic cultivation of microalgae.
- Sustainable valorisation of biomass (lignocellulosic, bacterial and microalgal).
- Sustainable exploitation of renewable raw materials and agricultural/industrial by-products.
- Production of biopolymers from renewable resources for health applications (bone and tissue engineering).
- Downstream processing for the recovery and isolation of high-added value products from biomass.
- Optimal enzymatic pretreatment of starch and lignocellulosic biomass.
- Process systems engineering in biochemical- and biopolymer-producing processes.
- Scale-up studies of chemical and biochemical processes.
- Dynamic modelling, control and optimisation of chemical and biochemical reactors in real time.
- Dynamic transient operation of chemical and biochemical reactors between products of different quality specifications.
- Mass and energy transport phenomena in bioreactors and chemical reaction units.
- Process integration
- Continuous-flow production systems.
- Transient expression of mAbs by targeted delivery of mRNA in mammalian cell cultures.

LIST OF TEN REPRESENTATIVES PUBLICATIONS

- Penloglou G., Vasileiadou, A., Chatzidoukas C., Kiparissides C. **2017** "Model-based intensification of a fed-batch microbial process for the maximization of polyhydroxybutyrate (PHB) production rate", *Bioprocess and Biosystems Engineering*, 40(8), 1247-1260 (IF: 1.87).
- Chatzidoukas C.*, Kondylidis A., Meimaroglou, **2017** "Model-assisted operational design of bacterial PHA-production processes: the obstacle of heterogeneity inducing modules", *Computer Aided Chemical Engineering* 40, 2887-2892. (IF: 0.264)
- Karapatsia A., Penloglou G., Chatzidoukas C.*, Kiparissides C. **2016** "An experimental investigation of *Stichococcus sp.* cultivation conditions for optimal co-production of carbohydrates, proteins and lipids following a biorefinery concept" *Biomass & Bioenergy Journal*, 89, 123-132. (IF: 4.186).
- Karapatsia A., Penloglou G., Chatzidoukas C.*, Kiparissides C. **2015** "Fed-batch *saccharomyces cerevisiae* fermentation of hydrolysate sugars: A dynamic model-based approach for high yield bioethanol production" *Biomass & Bioenergy Journal*, 90, 32-41. (IF: 4.186)
- Chatzidoukas C., Penloglou G., Kiparissides, C. **2013** "Development of a structured dynamic model for the production of polyhydroxybutyrate (PHB) in *Azohydromonas lata* cultures", *Biochemical Engineering Journal* 71, 72-80. (IF: 2.934)
- Penloglou G., Kretza E., Chatzidoukas C., Parouti S., Kiparissides C. **2012** "On the control of molecular weight distribution of polyhydroxybutyrate in *Azohydromonas lata* cultures", *Biochemical Engineering Journal* 62, 39-47. (IF: 2.934)
- Penloglou G., Chatzidoukas C., Kiparissides C. **2012** "Microbial production of polyhydroxybutyrate with tailor-made properties: An integrated modelling approach and experimental validation", *Biotechnology Advances* 30 (1), 329-339. (IF: 11.866)
- Penloglou G., Chatzidoukas C., Roussos A.I. and Kiparissides C. **2010** "A combined metabolic/polymerization kinetic model for the microbial production of poly(3-hydroxy butyrate)." *New Biotechnology*, 27(4) 358-367. (IF: 3.24)
- Chatzidoukas C., Pistikopoulos E.N., Kiparissides C. **2009** "A hierarchical optimisation approach to optimal production scheduling in an industrial continuous olefin polymerization reactor." *Macromolecular Reaction Engineering*, 3(1), 36-46. (IF: 1.57)
- Chatzidoukas C., Kanellopoulos V., Kiparissides C. **2007** "On the production of polyolefins with bimodal molecular weight and copolymer composition distributions in catalytic gas-phase fluidized-bed reactors." *Macromolecular Theory and Simulations*, 16(8), 755-769. (IF: 1.72)

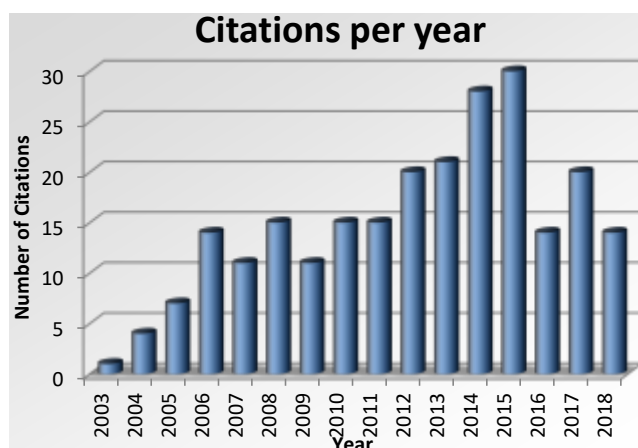
LIST OF FUNDED RESEARCH PROJECTS

- Operational Programme «Competitiveness and Entrepreneurship» NSRF-2014-2020- T1EAK-02775 "Innovative Nanomedicine for Personalized Breast Cancer Therapy Utilizing Superparamagnetically Guided (NY2Ps) Ribonucleoproteins" (*Collaborative Research Project- Funded*), Starting date: to be announced, duration 36 months, [{Support on the proposal writing, Principal Investigator, Partner}](#).
- Operational Programme «Competitiveness and Entrepreneurship» NSRF-2014-2020- T1EAK-03469 "Valorisation of food wastes through the development of biorefinery for the production of biofuels, biolubricants and value added products" (*Collaborative Research Project- Funded*), Starting date: to be announced, duration 36 months, [{Support on the proposal writing, Partner}](#).
- LIFE16 CCM/GR/000044 "Low-cost carbon positive bioethanol production with innovative Green Floating Filters in multiple water bodies", (*Collaborative Research Project- in Progress*) Starting date: September 2017, duration 42 months [{Support on the proposal writing, Partner}](#)
- Support of Research Activity in A.U.Th. A-2014-91433 "Optimisation and scaling-up of microbial processes for the production of polyhydroxyalkanoates", Starting date: July 2014, Ending date: October 2015 [{Proposal writing, Principal Investigator}](#)
- National Strategic Reference Framework «Collaboration 2011» NSRF-2013-1590- "Microalgae-Bio-Products- Sustainable Use of Marine Microalgae for the Production of Biofuels and High-Added Value Biochemicals", (*Collaborative Research Project-Completed*). Starting date: April 2013, Ending date: October 2015, [{Proposal writing, Coordinator of the project and Principal Investigator}](#).

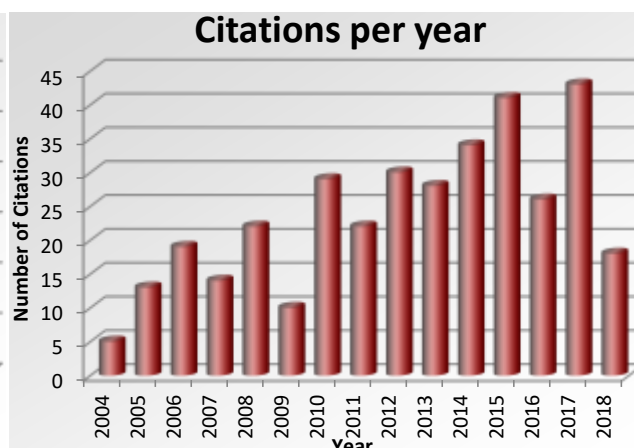
- Seventh Framework Programme KBBE-2012-6-311956 SPLASH-“Sustainable PoLyMers from Algae Sugars and Hydrocarbons”, (*Collaborative Research Project-Completed*). Starting date: September 2012, Ending date: August 2016, *{Support on the proposal writing, Partner}*.
- Sixth Framework Programme NMP2-CT-2007-026515 BIOPRODUCTION-“Sustainable Microbial and Biocatalytic Production of Advanced Functional Materials”, (*Collaborative Research Project-Completed*). Starting date: September 2006, Ending date: August 2010, *{Member of the Coordination Team and Scientific Committee, Partner}*.
- Fifth Framework Programme HRN-CT2000-00039- Batch-PRO-“Knowledge Driven Batch Production”, (*Collaborative Research Project-Completed*). Starting date: August 2000, Ending date: July 2004, *{Participate as researcher}*.
- Fifth Framework Programme GROWTH G1RD-CT-2000-00422- PolyPROMS-“Development of Advanced Polymerization Process Modeling, Simulation, Design and Optimization Tools”, (*Collaborative Research Project-Completed*). Starting date: February 2001, Ending date: January 2004, *{Participate as researcher}*.
- Fifth Framework Programme BRPR-97-0503- SUPERPOL-“Polymerization and Polymer Modification in Supercritical Fluids: A novel Way for Cleaner Manufacturing of Plastics”, (*Collaborative Research Project-Completed*). Starting date: December 1997, Ending date: October 2000, *{Participate as researcher}*.

SYNOPSIS OF SCIENTIFIC-ACADEMIC WORK-PERFORMANCE INDICES

Source: **Scopus**



Source: **Google Scholar**



Publications: **26**
 Oral and poster presentations in national & international conferences: **>60**
 Citations: (Scopus/Google Scholar): **240/356**
 Without self-citations: **223**
 Citing articles/without self-citations: **169**
 h-index: **9**

PhD thesis: Supervisor in **1** thesis
 Co-supervisor in **4** thesis
 Evaluation Committee in **9** thesis
 Diploma Thesis: **12** (Supervisor)
 Evaluation committee in more than **50**

ADDITIONAL INFORMATION

Organisational skills and competences

Organising committee in the 11th Panhellenic Scientific Conference of Chemical Engineering-11PESXM
 Host organization: School of Chemical Engineering, Aristotle University Thessaloniki A.U.Th.
 Dates: 25-27th of May, 2017
 Participants exceeded 1100

Organising committee in the 21st European Symposium on Computer Aided Process Engineering-ESCAPE 21
 Host organization: Department of Chemical Engineering Imperial College, London & School of Chemical Engineering, Aristotle University Thessaloniki A.U.Th.
 Dates: 29th of May-1st of June, 2011
 Participants exceeded 550

Participation in the organization of over 10 scientific meetings and workshops

Ability to scientifically and administrative coordinate collaborative research projects with international academic and industrial participants composing a multi-disciplinary field.

Communicational skills

Writing of technical reports, drafting skills and capability to summarize complex materials clearly.

Reviewer in Scientific Journal

- AIChE Journal
- Biochemical Engineering Journal
- BioMed Research International Journal
- Bioprocess and Biosystems Engineering Journal
- Bioresource Technology Journal
- Biotechnology Journal
- Chemical Engineering Research and Design
- Computers & Chemical Engineering
- Industrial & Engineering Chemistry Research
- Journal of Applied Polymer Science
- Journal of Biotechnology Advances
- Macromolecular Reaction Engineering
- New Biotechnology Journal

Certificate of Outstanding Contribution in Reviewing awarded by the Chemical Engineering Research & Design and Computers & Chemical Engineering Journals.

Awards and distinctions

- Recipient of the 2004-Technical Chamber of Greece Award as best performing newly registered engineer
- Holder of Scholarships awarded by the Greek State Scholarship Foundation, academic years: 1993-1998
- Recipient of an economic award by the Greek State Scholarship Foundation, as best newly introduced student in the School of Chemical Engineering, A.U.Th. in the academic year: 1993-1994 (Rank: 3rd).

Military Service

Greek Army, February 2005-August 2005 (six-month service as "distinguished scientist").