

## Curriculum Vitae

### Stamatina N. Vouyiouka

Associate Professor, School of Chemical Engineering  
National Technical University of Athens (NTUA)

#### Synopsis



Dr. Stamatina Vouyiouka holds a Diploma Degree in Chemical Engineering from National Technical University of Athens (NTUA), and earned her Ph.D. in Polymer Science and Technology from NTUA, in 2004. Her Ph.D. work focused on polyamides solid state polymerization and post-polymerization processes under the supervision of Emeritus Professor C.D. Papaspyrides, in the frame of a scientific collaboration between the Laboratory of Polymer Technology at NTUA and the Experimental Station of Dupont Textiles & Interiors Inc. (Delaware, USA). In the years 2005-2009, her academic journey started as a postdoctoral researcher in the R&D Department "Plastic Additives Segment, Polymer Design" (CIBA Specialty Chemicals Lampertheim GmbH, Germany) and in the **Laboratory of Polymer Technology** (NTUA, Greece). In September 2009, she was elected Lecturer in the School of Chemical Engineering at NTUA with subsequent promotion to Assistant Professor in December 2014. Since December 2019 she holds the position of Associate Professor, and leads the **PolymeReEng** group which is continuously expanding and broadening its research scopes.

Dr. Vouyiouka possesses research experience in polymer engineering aiming to design and optimize sustainable processes for the polymerization, polymer modification and plastics high-quality recycling. Her research interests are interdisciplinary, diverse and reflect the on-going growth and perspectives in the field of applied polymer technology, seeking to produce useful solutions to challenges via eco-friendly engineering routes. Her innovative approach in polymerization processes involves exploiting environmentally-friendly polymerization routes, such as enzymatic polymerization and solid state polymerization (SSP) for polyamides and polyesters including biobased and/or biodegradable polymers. Her work on polymerization also covers aspects of encapsulation methods, starting with *in situ* polymerization routes and tailoring properties of polymeric micro/nanoparticles for controlled release and self-healing cutting-edge applications. Her activity involves significant contribution on the sustainable management of polymeric materials through investigating different approaches regarding (i) material eco-design (recyclable and functional vitrimers, structure-properties relationships for biobased/biodegradable polymers, natural antioxidants, halogen-free flame retardants) and (ii) high-quality recycling through remelting-restabilization, chain extension, or SSP as approaches to safeguard against further degradation or even restore recycle performance aiming at value-added new recycled products.

Dr. Vouyiouka has co-authored and contributed to 18 National and European Funded R&D Programs acquiring thus the ability to collaborate with multidisciplinary teams driving innovation and producing pivotal outcomes. Her scientific work has been documented in 60 publications in leading journals, in 5 chapters in Books and Edited Volumes, in two WO Patents and in 137 presentations in International (84 works) and National Conferences. She is also the joint Editor of the book titled "Solid State Polymerization", which was published by John Wiley & Sons, Inc., in 2009, and she has served as the Guest Editor of the Special Issue **Advances in Polycondensates Polymerization Processes** in Materials (MDPI). Beyond her research endeavors, Dr. Vouyiouka is dedicated to education and mentorship; she teaches polymer engineering courses in Chemical Engineering at NTUA at graduate and undergraduate levels and she has cosupervised or is supervising more than 70 undergraduate Diploma Theses including Erasmus Research Projects, MSc Theses and Doctoral Dissertations, receiving awards as diploma and Ph.D. thesis advisor.

## Personal Information

|                        |                                                                                                                               |                            |                     |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------|
| <b>Date of Birth:</b>  | 23 April 1977                                                                                                                 | <b>Place of Residence:</b> | Athens              |
| <b>Marital Status:</b> | Married, two children                                                                                                         | <b>ORCID:</b>              | 0000-0003-3764-1170 |
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| <b>Email:</b>          | mvuyiuka@central.ntua.gr                                                                                                      |                            |                     |
| <b>Webpage:</b>        | <a href="http://polymers.chemeng.ntua.gr/PolymeReEng/matina.html">http://polymers.chemeng.ntua.gr/PolymeReEng/matina.html</a> |                            |                     |
| <b>PolymeReEng</b>     | <a href="http://polymers.chemeng.ntua.gr/PolymeReEng">http://polymers.chemeng.ntua.gr/PolymeReEng</a>                         |                            |                     |

## Education

### 06.2000 – 11.2004 Ph.D. in Polymer Science and Technology

School of Chemical Engineering, National Technical University of Athens (NTUA), Athens, Greece. Thesis title: "Optimization of polyamide properties through solid state polymerization technology"

### 10.1995-10.2000 Diploma in Chemical Engineering

School of Chemical Engineering, National Technical University of Athens (NTUA), Athens, Greece. Diploma degree: 8.08/10

## Professional Positions

### 12.2019 – today Associate Professor

School of Chemical Engineering, National Technical University of Athens, Greece

### 12.2014-12.2019 Assistant Professor

School of Chemical Engineering, National Technical University of Athens, Greece

### 09.2009 – 12.2014 Lecturer

School of Chemical Engineering, National Technical University of Athens, Greece

### 09.2007 –09.2009 Research Associate

Laboratory of Polymer Technology, School of Chemical Engineering, National Technical University of Athens

### 05.2006 – 11.2006 Post-Doctoral Researcher

R&D Department, "Plastic Additives Segment, Polymer Design" CIBA Specialty Chemicals Lampertheim GmbH, Germany. In: "Synthesis of organophosphorus flame retardants for epoxy resins and polypropylene"

### 2005 – 2007 Post-Doctoral Researcher

Laboratory of Polymer Technology, School of Chemical Engineering, National Technical University of Athens, Greece. In: "Catalyzed solid state polyamidation processes" (funded by the Greek State Scholarships Foundation)

## Publications

In August 2024, Dr. Vouyiouka holds 60 publications including the Edition of a Book and 5 Chapters in Books and Edited Volumes. For an updated list, please visit [ORCID profile](#).

### Edited Book (Invited)

Papaspyrides C, [Vouyiouka S](#), Editors. Solid state polymerization. NJ: John Wiley & Sons, Inc. 2009 294 pp, [doi](#)

### Chapters in Books and Edited Volumes (Invited)

5. [Vouyiouka S](#), Papaspyrides C. Mechanistic aspects of solid state polycondensation. In: Matyjaszewski K, Moeller M, editors. Comprehensive Polymer Science: Vol.4. Elsevier. 2012 pp.857-874, [doi](#)
4. Boussia A, [Vouyiouka S](#), Papaspyrides C. Polyamide nanocomposites by in-situ polymerization. Chapter 2. In: V. Mittal, editor. In-situ synthesis of polymer nanocomposites. Weinheim: Wiley VCH Verlag GmbH & Co. KGaA. 2012 pp.27-51, [doi](#)

3. Vouyiouka S, Papaspyrides C. Solid state polymerization. In: Encyclopedia of Polymer Science and Technology. 4th edition. NJ: John Wiley & Sons, Inc. 2011 pp.1-32, [doi](#)
2. Papaspyrides C, Vouyiouka S. Fundamentals of solid state polymerization. In: Papaspyrides C, Vouyiouka S, editors. Solid state polymerization. Chapter 1. NJ: John Wiley & Sons, Inc. 2009 pp.1-37, [doi](#)
1. Vouyiouka S, Papaspyrides C. Kinetic aspects of polyamides solid state polymerization. In: Papaspyrides C, Vouyiouka S, editors. Solid state polymerization. Chapter 4. NJ: John Wiley & Sons, Inc. 2009 pp. 123-157, [doi](#)

### International Patents

2. Pfaendner R, Papaspyrides C, Diamanti P-C, Vouyiouka S, Chronaki K, Porfyrus A. Method for manufacturing aliphatic polyesters and use of phosphorus-containing organic additives. Fraunhofer-Gesellschaft, WO2018224672, 2018, pp 24.
1. Pfaendner R, Fink J, Simon D, Papaspyrides C, Vouyiouka S. Process for the preparation of polyamides in the presence of a phosphonate. Ciba Specialty Chemicals Lampertheim GmbH, WO2007/006647, 2007, pp.36.

### Publications in Peer-Reviewed Journals (\* Corresponding author)

60. Panagiotopoulos Chr, Kapageridou Evg, Karamitrou M, Korres D, Charitidis C, Vouyiouka\* S. Recycling/Upcycling of physically aged poly(butylene succinate) into PBS vitrimers through Zn(II)-catalyzed melt vitrimerization. *Macromolecules* 2024;57:5747-5768, [doi](#)
59. Porfyrus\* A, Vafeiadis A, Gkountela Chr, Politidis Chr, Messaritakis G, Orfanoudakis E, Pavlidou S, Korres D, Kyritsis A, Vouyiouka\* S. Flame-retarded and heat-resistant PP compounds for halogen-free low-smoke cable protection pipes (HFLS Conduits). *Polymers (Special Issue State-of-the-Art Polymer Science and Technology in Greece)* 2024;16(9):1298, [doi](#)
58. Athanasiou P, Gkountela Chr, Patila M, Fotiadou R, Chatzikonstantinou A, Vouyiouka S, Stamatis\* H. Laccase-mediated oxidation of phenolic compounds from wine lees extract towards the synthesis of polymers with potential applications in food packaging. *Biomolecules* 2024;14(3):323, [doi](#)
57. Sarafoglou\* Ch. Skaltsas D, Tsiourva D, Zotiadis C, Korres D, Ioannou P, Andreouli D, Papadopoulos C, Vouyiouka S, Georgiopoulos I. Encapsulated liquid lubricants incorporated in metal matrix thermal spraying coatings. *J Thermal Spray Technology* 2024;33(2-3):786-805, [doi](#)
56. Klonos P, Chronaki K, Vouyiouka\* S, Kyritsis\* A. Effects of high crystallinity on the molecular mobility in poly(lactic acid)-based microcapsules. *ACS Appl. Polym. Mat.* 2024;6(2):1573-1583, [doi](#)
55. Gkountela Chr, Markoulakis D, Mathioudaki M, Pitterou I, Detsi A, Vouyiouka\* S. Scalable enzymatic polymerization and low-temperature post-polymerization of poly(butylene succinate): Process parameters and application. *Europ. Polym. J.* 2023;198:112423, [doi](#)
54. Makryniotis K, Nikolaivits E, Gkountela Chr. Vouyiouka S, Topakas\* E. Discovery of a polyesterase from *Deinococcus maricopenis* and comparison to the benchmark LCCICCG suggests high potential for semi-crystalline post-consumer PET degradation. *J. Hazardous Mat.* 2023;455:131574, [doi](#)
53. Taxeidis G, Nikolaivits E, Siaperas R, Gkountela Chr, Vouyiouka S, Pantelic Br, Nikodinovic-Runic J, Topakas\* E. Triggering and identifying the polyurethane and polyethylene-degrading machinery of filamentous fungi secretomes. *Environmental Pollution* 2023;325:121460, [doi](#)
52. Zerva A, Siaperas R, Taxeidis G, Kyriakis M, Vouyiouka S, Zervakis G, Topakas\* E. Investigation of *Abortiporus biennis* lignocellulotic toolbox, and the role of laccases in polystyrene degradation. *Chemosphere* 2023;312:137338, [doi](#)
51. Kanelli\* M, Saleh B, Webster Th, Vouyiouka S, Topakas E. Co-encapsulation of violacein and iron oxide in poly(lactic acid) nanoparticles for application as an antibacterial and anticancer system. *J. Biomedical Nanotechnology* 2022;18(3):729-739, [doi](#)

50. Nikolaivits E, Taxeidis G, Gountela Chr, [Vouyiouka S](#), Maslak Veselin, Nikodivomic-Rumic J, Topakas\* E. A polyesterase from the Antarctic bacterium *Moxarella* sp. degrades highly crystalline synthetic polymers. *J. Hazardous Mat.* 2022;434:128900, [doi](#)
49. Arkas\* M, Douloudi M, Nikoli E, Karountzou G, Kitsou I, Kavetsou E, Korres D, [Vouyiouka S](#), Tsetsekou A, Giannakopoulos K, Papageorgiou M. Investigation of two bioinspired reaction mechanisms for the optimization of nano catalysts generated from hyperbranched polymer matrices. *React. Funct. Polym.* 2022;174:105238, [doi](#)
48. Gountela Chr, [Vouyiouka\\* S](#). Enzymatic polymerization as a green approach to synthesizing bio-based polyesters. *Macromol (Invited)* 2022;2:30-57, [doi](#)
47. Sourkouni G, Kalogirou Ch, Moritz Ph, Godde A, Pandis P, Hoft O, [Vouyiouka S](#), Zorpas A, Argiris\* Chr. Study on the influence of advanced treatment processes on the surface properties of polylactic acid for a biobased circular economy for plastics. *Ultrasonics Sonochemistry* 2021;76:105627, [doi](#)
46. Zotiadis Chr, Patrikalos I, Loukaidou V, Korres D, Karantonis A, [Vouyiouka\\* S](#). Self-healing coatings based on poly(urea-formaldehyde) microcapsules: In situ polymerization, capsule properties and application. *Prog. Org. Coatings* 2021;161:106475, [doi](#)
45. Porfyris\* A, Luyt A, Gasmi S, Malik S, Aljindi R, Ouederni M, [Vouyiouka S](#), Pfaendner R, Papaspyrides C. Enhancing the UV/heat stability of LLDPE irrigation pipes via different stabilizer formulations. *SPE Polymers* 2021;2:336–350, [doi](#)
44. Mytara A, Chronaki K, Nikitakos V, Papaspyrides C, Beltsios K, [Vouyiouka\\* S](#). Synthesis of polyamide-based microcapsules via interfacial polymerization: Effect of key process parameters. *Materials* 2021;14(19):5895, [doi](#)
43. Mytara A, Porfyris A, [Vouyiouka S](#), Papaspyrides\* C. New Aspects on the direct solid state polycondensation (DSSP) of aliphatic nylon salts: The case of hexamethylene diammonium dodecanoate. *Polymers* 2021;13(16):2625, [doi](#)
42. Porfyris\* A, [Vouyiouka S](#), Luyt\* AS, Korres DM, Malik S, Gasmi S, Grosshauer M, Pfaendner R, Papaspyrides C. Development of value-added polyethylene grades with extended service lifetime: Weathering resistant flame retarded materials for outdoor applications. *J. Appl. Polym. Sci.* 2021;138(19):50370, [doi](#)
41. Georgiopolou I, Pappa\* G, [Vouyiouka S](#), Magoulas K. Recycling of post-consumer multilayer Tetra Pak® packaging with the selective dissolution-precipitation process. *Res. Conserv. Rec.* 2021;165:105268, [doi](#)
40. Gkountela Chr, Rigopoulou M, Barampouti EM, [Vouyiouka\\* S](#). Enzymatic prepolymerization combined with bulk post-polymerization towards the production of bio-based polyesters: The case of poly(butylene succinate). *Europ. Polym. J.* 2021;143(15):110197, [doi](#)
39. Luyt\* SA, Gasmi S, Malik S, Aljindi RM, Ouederni M, [Vouyiouka S](#), Porfyris A, Pfaendner R, Papaspyrides C. Artificial weathering and accelerated heat aging studies on low-density polyethylene (LDPE) produced via autoclave and tubular process technologies. *eXPRESS Polym. Lett.* 2021;15(2):121–136, [doi](#)
38. Panagiotopoulos Chr, Porfyris A, Korres DM, [Vouyiouka\\* S](#). Solid-state polymerization as a vitrimerization tool starting from available thermoplastics: The effect of reaction temperature. *Materials* 2021;14(1):1-18, [doi](#)
37. Tzavidi S, Zotiadis Chr, Porfyris A, Korres DM, [Vouyiouka\\* S](#). Epoxy loaded poly(urea-formaldehyde) microcapsules via in situ polymerization designated for self-healing coatings. *J. Appl. Polym. Sci.* 2020;137(43):49323, [doi](#)
36. Chronaki K, Korres DM, Papaspyrides C, [Vouyiouka\\* S](#). Poly(lactic acid) microcapsules: Tailoring properties via solid state polymerization. *Polym. Degrad. Stab.* 2020;179:109283, [doi](#)
35. Luyt\* AS, Malik S, Gasmi S, Porfyris A, Andronopoulou A, Korres DM, [Vouyiouka\\* S](#), Grosshauer M, Pfaendner R, Brull R, Papaspyrides C. Halogen-free flame-retardant compounds. Thermal decomposition and flammability behavior for alternative polyethylene grades. *Polymers* 2019;11(9):1479, [doi](#)

34. Douka A, Vouyiouka\* S, Papaspyridi L-M, Papaspyrides CD. A review on enzymatic polymerization to produce polycondensation polymers: The case of aliphatic polyesters, polyamides and polyesteramides. *Prog. Polym. Sci.* 2018;79:1-25, [doi](#)
33. Porfyrakis A, Vasilakos S, Zotiadis Chr, Papaspyrides C, Moser K, Van der Schueren L, Buyle G, Pavlidou S, Vouyiouka\* S. Accelerated ageing and hydrolytic stabilization of poly(lactic acid) (PLA) under humidity and temperature conditioning. *Polymer Testing* 2018;68:315-332, [doi](#)
32. Kamtsikakis A, Kavetsou E, Chronaki K, Kiosidou E, Pavlatou E, Karana A, Papaspyrides C, Detsi A, Karantonis A, Vouyiouka\* S. Encapsulation of antifouling organic biocides in poly(lactic acid) nanoparticles. *Bioengineering* 2017;4(4):81, [doi](#)
31. Kesente M, Kavetsou E, Roussaki M, Blidi S, Loupassaki S, Chanioti S, Siamandoura P, Stamatogianni C, Philippou E, Papaspyrides C, Vouyiouka S, Detsi\* A. Encapsulation of olive leaves extracts in biodegradable PLA nanoparticles for use in cosmetic formulation. *Bioengineering* 2017;4(3):75, [doi](#)
30. Kotronia M, Kavetsou E, Loupassaki S, Kikionis S, Vouyiouka S, Detsi\* A. Encapsulation of oregano (*Origanum onites* L.) essential oil in  $\beta$ -cyclodextrin ( $\beta$ -CD): Synthesis and characterization of the inclusion complexes. *Bioengineering* 2017;4(3):74, [doi](#)
29. Zerva A, Manos N, Vouyiouka S, Christakopoulos P, Topakas\* E. Bioconversion of biomass-derived phenols catalyzed by *Myceliophthora thermophila* laccase. *Molecules* 2016;21(5):550, [doi](#)
28. Papaspyrides\* C, Vouyiouka S, Georgousopoulou I-N, Marinkovic S, Estrine B, Joly C, Dole P. Feasibility of solid-state postpolymerization on fossil- and bio-based poly(butylene succinate) including polymer upcycling routes. *Ind. Eng. Chem. Res.* 2016;55(20):5832-5842, [doi](#)
27. Jbilou F, Georgousopoulou I-N, Marinkovic S, Vouyiouka S, Papaspyrides C, Estrine B, Dole P, Cottaz A, Joly\* C. Intelligent monitoring of solid state polymerization via molecular rotors: the case of poly(butylene succinate). *Europ. Polym. J.* 2016;78:61-71, [doi](#)
26. Porfyrakis A, Vouyiouka S, Papaspyrides\* C, Rulkens R, Grolman E, Poel GV. Investigating alternative routes for semi-aromatic polyamide salt preparation: The case of tetramethylenediammonium terephthalate (4T salt). *J. Appl. Polym. Sci.* 2016;133(13):42987, [doi](#)
25. Papaspyrides\* C, Porfyrakis A, Vouyiouka S, Rulkens R, Grolman E, Poel G. Solid state polymerization in a micro-reactor: the case of poly(tetramethylene terephthalamide). *J. Appl. Polym. Sci.* 2016;133(14):43271, [doi](#)
24. Georgousopoulou I-N, Vouyiouka\* S, Dole P, Papaspyrides C. Thermo-mechanical degradation and stabilization of poly(butylene succinate). *Polym. Degrad. Stab.* 2016;128:182-192, [doi](#)
23. Filgueiras V, Vouyiouka\* S, Konstantakopoulou M, Boussia A, Papaspyrides C, Lima E-L, Pinto J-C. Modelling of polyamide 66 solid state polymerization: Drawing a chemical reaction scheme. *Macromol. React. Eng.* 2015;9(2):65-89, [doi](#)
22. Roussaki M, Gaitanarou A, Diamanti P, Vouyiouka S, Papaspyrides C, Kefalas P, Detsi\* A. Encapsulation of the natural antioxidant aureusidin in biodegradable PLA nanoparticles. *Polym. Degrad. Stab.* 2014;108:182-187, [doi](#)
21. Kanelli M, Douka A, Vouyiouka S, Papaspyrides\* C, Topakas E, L.-M. Papaspyridi L.-M, Christakopoulos P. Production of biodegradable polyesters via enzymatic polymerization and solid state finishing. *J. Appl. Polym. Sci.* 2014;131(19):40820, [doi](#)
20. Vouyiouka\* S, Topakas E, Katsini A, Papaspyrides C, Christakopoulos P. A green route for the preparation of aliphatic polyesters via lipase-catalyzed prepolymerization and low-temperature post polymerization. *Macromol. Mater. Eng.* 2013;298(6):679-689, [doi](#)
19. Vouyiouka S, Theodoulou P, Symeonidou A, Papaspyrides\* C, Pfaendner R. Solid state polymerization of poly(lactic acid): Some fundamental parameters. *Polym. Degrad. Stab.* 2013;98(12):2473-2481, [doi](#)
18. Boussia A, Vouyiouka S, Papaspyrides\* C. Applying the traditional solution melt polymerization for the in situ intercalation of polyamide 6.6-clay nanocomposites. *Macromol. Mater. Eng.* 2012;297(1):68-74, [doi](#)



17. Boussia A, Konstantakopoulou M, Vouyiouka S, Papaspyrides\* C. Catalytic performance and nanoclay effects on post-solid-state polyamidation: The case of polyamide 6,6 nanocomposites. *J. Appl. Polym. Sci.* 2012;125(Suppl. 1):E320-E326, [doi](#)
16. Vouyiouka S, Filgueiras V, Papaspyrides\* C, Lima E, Pinto JC. Morphological changes of poly(ethylene terephthalate-co-isophthalate) during solid state polymerization. *J. Appl. Polym. Sci.* 2012;124(6):4457-4465, [doi](#)
15. Hatzigrigoriou N, Vouyiouka S, Joly C, Dole C, Papaspyrides\* C. Temperature-humidity superposition in diffusion phenomena through polyamidic materials. *J. Appl. Polym. Sci.* 2012;125(4):2814-2823, [doi](#)
14. Boussia A, Konstantakopoulou M, Vouyiouka S, Papaspyrides\* C. Nanocatalysis in polyamide 6.6 solid-state polymerization. *Macromol. Mater. Eng.* 2011;296(2):168-177, [doi](#)
13. Filgueiras V, Vouyiouka\* S, Papaspyrides C, Lima E, Pinto JC. Solid-state polymerization of poly(ethylene terephthalate): The effect of water vapor in the carrier gas. *Macromol. Mater. Eng.* 2011;296(2):113-121, [doi](#)
12. Boussia A, Vouyiouka S, Porfyrus A, Papaspyrides\* C. Long-aliphatic-segment polyamides: Salt preparation and subsequent anhydrous polymerization. *Macromol. Mater. Eng.* 2010;295(9):812-821, [doi](#)
11. Boussia A, Damianou C, Vouyiouka S, Papaspyrides\* C. Potential in situ preparation of aliphatic polyamide-based nanocomposites: The organoclay-polyamide salt interaction. *J. Appl. Polym. Sci.* 2010;116(6):3291-3302, [doi](#)
10. Papaspyrides C, Pavlidou S, Vouyiouka S. Development of advanced textile materials: Natural fibre composites, anti-microbial, and flame-retardant fabrics. *Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications*, 2009;223(2):91-102, [doi](#)
9. Vouyiouka S, Papaspyrides\* C. Post-polymerization in the solid state of modified PA 66 prepolymers. *Chemical Fibers International* 2008;58(4):226-228 (Invited), [doi](#)
8. Vouyiouka S, Koumantarakis G, Papaspyrides\* C. Preparation and solid-state polyamidation of hexamethylenediammonium adipate: The effect of sodium 5-sulfoisophthalic acid. *J. Appl. Polym. Sci.* 2007;104(3):1609-1619, [doi](#)
7. Vouyiouka S, Papaspyrides\* C, Weber J, Marks D. Solid state post-polymerization of PA 6,6: The effect of sodium 5-sulfoisophthalic acid. *Polymer* 2007;48(17):4982-4989, [doi](#)
6. Vouyiouka S, Papaspyrides\* C, Pfaendner R. Catalyzed solid-state polyamidation. *Macromol. Mater. Eng.* 2006;291(12):1503-1512, [doi](#)
5. Papaspyrides\* C, Vouyiouka S, Bletsos J. New aspects on the mechanism of the solid state polyamidation of PA 6,6 salt. *Polymer* 2006;47(4):1020-1027, [doi](#)
4. Vouyiouka S, Papaspyrides\* C, Weber J, Marks D. Polyamide solid state polymerization: Evaluation of pertinent kinetic models. *J. Appl. Polym. Sci.* 2005;97(2):671-681, [doi](#)
3. Vouyiouka S, Karakatsani E, Papaspyrides\* C. Solid state polymerization. *Prog. Polym. Sci.* 2005;30(1):10-37, [doi](#)
2. Papaspyrides\* C, Vouyiouka S, Bletsos J. Preparation of polyhexamethylenedipamide prepolymer by a low-temperature process. *J. Appl. Polym. Sci.* 2004;92(1):301-306, [doi](#)
1. Papaspyrides\* C, Vouyiouka S, Bletsos J. New process for the production of dry hexamethylenediammonium adipate. *J. Appl. Polym. Sci.* 2003;88(5):1252-1257, [doi](#)

#### **Selected International Conferences (\*corresponding author, presenter in bold)**

15. **Gkountela** Chr, Vouyiouka\* S. Towards Plastics Sustainability: A holistic study on aliphatic polyesters enzymatic polymerization. 9<sup>th</sup> International Conference on Bio-based and Biodegradable Polymers, BIOPOL 2024, Portugal, Coimbra, 22-24 July 2024
14. **Vouyiouka\* S**, Gkountela Chr, Zotiadis Chr, Panagiotopoulos Chr. Sustainable designing and recycling/upcycling of biopolyesters. *Polymers 2024 – Polymers for a Safe and Sustainable Future*, Athens, Greece, 28-31 May 2024

13. **Zotiadis Chr**, Porfyrus A, Korres D, Boukouvalas Chr, Krokida M, Vouyiouka\* S. From wood waste to biobased composite materials for long-term applications. Polymers 2024 – Polymers for a Safe and Sustainable Future, Athens, Greece, 28-31 May 2024
12. **Gkountela Chr**, Korres D, Zotiadis Chr, Vouyiouka\* S. Reviving mixed plastic waste through chemoenzymatic recycling. Polymers 2024 – Polymers for a Safe and Sustainable Future, Athens, Greece, 28-31 May 2024
11. **Zotiadis Chr**, Kyprioti Evg, Karana A, Tsoukatos T, Karantonis A, Vouyiouka\* S. Towards effective self-healing coating systems for metal protection: from microcapsule synthesis to performance evaluation. Polymers 2024 – Polymers for a Safe and Sustainable Future, Athens, Greece, 28-31 May 2024
10. **Panagiotopoulos C**, Caruso E, Karamitrou M, Korres D, Charitidis C, Vouyiouka\* S. High-performance and reprocessable epoxy-succinic acid vitrimers. Polyconf14, 14<sup>th</sup> Hellenic Polymer Society International Conference. Thessaloniki, Greece, 22-25 November 2023. **Best Oral Presentation Award**
9. **Podara Chr**, Panagiotopoulos Chr, Lopez E, Mytara M, Porfyrus A, Loupou E, Tsirogiannis Chr, Karamitrou M, Vouyiouka\* S, Charitidis C. Study on thermomechanical degradation and re-stabilization of high Impact polystyrene (HIPS) from electric and electrical equipment (EEE) waste. PPI2023, International Conference on Polymer Process Innovation, Guimaraes, Portugal, 13-15 September 2023
8. **Giotopoulou I**, Barkoula\* N-B, Porfyrus A, Vouyiouka S, Safakas K, Ladavos A, Fotiadou R, Stamatias H, Papageorgiou A, Thanassoulia I, Lambropoulos I. LDPE bioactive films: From the lab to the pilot production – Challenges and perspectives. ICSAAM 2023, 10th International Conference on Structural Analysis of Advanced Materials. Zakynthos, Greece, 10-14 September 2023. **Best Oral Presentation Award**
7. Vana M, Panagiotopoulos C, Christianides D, Mytara A, Barampouti E, Mai S, Vouyiouka\* S. Perspectives on micro-plastics detection in biowaste via ATR-FTIR spectroscopy. Chania 2023 – 10th International Conference on Sustainable Solid Waste Management. Chania, Greece, 21-24 June 2023
6. Vouyiouka\* S, Gountela C, Chronaki K. Sustainable challenges to produce green polymers and manage their waste: Solid state polymerization. 8<sup>th</sup> International Conference on Bio-based and Biodegradable Polymers, Biopol-2022, Alicante, Spain, 14-16 November 2022
5. Panagiotopoulos C, Mytara A, Korres D, Podara C, Karamitrou M, Kosanovic T, Charitidis C, Vouyiouka\* S. PRecycling: Making “waste to product” transformation of plastic waste streams viable, scalable and safe-to-use. 8th International Conference on Bio-based and Biodegradable Polymers, Biopol-2022, Alicante, Spain, 14-16 November 2022
4. **Makryniotis K**, Nikolaivits E, Taxeidis G, Gountela Chr, Vouyiouka S, Nikodinovic-Runic J, Topakas\* E. An interdisciplinary approach for the discovery and utilization of novel polymer degrading enzymes. 8th International Conference on Bio-based and Biodegradable Polymers, Biopol-2022, Alicante, Spain, 14-16 November 2022
3. **Zotiadis Chr**, Patrikalos J, Korres D, Georgiopoulos I, Sarafoglou Ch, Vouyiouka\* S. Robust self-lubricating poly(urea-formaldehyde) microcapsules designed for thermal spraying coating applications. EPF European Polymer Congress. Prague, Czech Republic, 26 June-1 July 2022
2. **Panagiotopoulos Chr**, Korres D, Vouyiouka\* S. Bio-based vitrimers from poly(butylene succinate): A kinetics study vitrimerization reactions in the melt. EPF European Polymer Congress. Prague, Czech Republic, 26 June-1 July 2022
1. **Gkountela Chr**, Vouyiouka\* S. Exploring enzymatic polymerization pathways for the production of aliphatic polyesters. Polymers 2022 - New Trends in Polymer Science: Health of the Planet, Health of the People, Turin, Italy, 25-27 May 2022

## Memberships & Reviewing Activities

- 09.2024 – Secretariat of the MoDeSt (Modification, Degradation, Stabilization) Society**, member of the BoD of the Scientific Society
- 2021 – 2022 Special Issue Editor, Materials (MDPI) - Advances in Polycondensates Polymerization Processes**
- 2004 – Reviewer for over 35 peer-review scientific journals**  
Journal of Applied Polymer Science, Journal of Polymer Science Part A: Polymer Chemistry, Polymer Chemistry, Macromolecular Reaction Engineering, Macromolecules, SPE Polymer Engineering & Science, European Polymer Journal, ACS Applied Polymer Materials, Polymer Testing, Progress in Organic Coatings, Polymer Degradation and Stability, Macromolecular Symposia, Industrial & Engineering Chemistry Research, Molecules, Materials, Colloids and Surfaces A: Physicochemical and Engineering Aspects, Polymers, Composites Science and Technology, Langmuir, Journal of Advanced Research, Advanced Sustainable Systems, Environmental pollution, Toxological and Environmental Chemistry, Environmental Engineering Science, Food and Bioproducts Processing, Biomacromolecules, Waste Management, ChemistrySelect, Journal of Polymers and the Environment, Journal of Cleaner Production, Polymer Chemistry, Green Chemistry, Journal of Hazardous Materials.
- 2015 Reviewer of an Academic Edition**  
Achilias D. *The science of polymers through solved exercises* (Kallipos Open Academic Editions)
- 2015 – Evaluator and Reviewer of Research Proposals and Funded Programs:** Undergraduate Research Experience Program (UREP), Qatar National Research Fund; Operational Program Competitiveness, Entrepreneurship, and Innovation under the call RESEARCH – CREATE – INNOVATE, General Secretariat for Research and Technology, Greece; State Scholarships Foundation (IKY), Greece; National Science Centre, Poland
- 2021– Member of the Scientific Committee of International Conferences:** *Polyconf13*, 13<sup>th</sup> Hellenic Polymer Society International Conference, 12-16 December 2021; *PPI2022*, 2<sup>nd</sup> International Polymer Process Innovation Conference, 15-16 September 2022; *Polyconf14*, 14<sup>th</sup> Hellenic Polymer Society International Conference, 22-25 November 2023; *Polymers 2024* – Polymers for a Safe and Sustainable Future, 28-31 May 2024; *MoDeSt 2010*, 6<sup>th</sup> International Conference on Modification, Degradation and Stabilization of Polymers, 5-9 September 2010.
- 2019 Member of the Organizing Committee**, 12<sup>th</sup> Panhellenic Conference of Chemical Engineering, 29-31 May 2019, Athens, Greece
- 2010 Organizing Secretariat**, 6<sup>th</sup> International Conference on Modification, Degradation and Stabilization of Polymers, MoDeSt 2010, 5-9 September 2010, Athens, Greece.
- 2020– Member** of the Internal Evaluation Committee of School of Chemical Engineering, NTUA. Among others, Participation in the Accreditation Granting Process for the undergraduate study programme (Integrated Master) of Chemical Engineering, NTUA
- 2019– Member** of the Undergraduate Studies Committee, School of Chemical Engineering, NTUA. Among others, implementation of the new Undergraduate Study Programme (applied in all semesters during 2020-2021)



## Awards

- 2023**      **1<sup>st</sup> award for the Iakovos Giourounlian 2023 prize** on the best Ph.D. thesis with industrial relevance in Chemical Engineering at NTUA.  
- **Zotiadis Christos**. Design of microcapsule-based polymeric encapsulation systems via *in situ* polymerization. Advisor: S. Vouyiouka.
- 2023**      **2<sup>nd</sup> Award for the Best Master Thesis** on Sustainability in the Universitat Polytechnica di Valencia (Spain) for the student **Elena Caruso**. Thesis Title: Development of production methods for vitrimers based on poly(butylene succinate). Advisor: S. Vouyiouka.
- 2023**      **Best Oral Presentation Award**, 14<sup>th</sup> Hellenic Polymer Society International Conference (POLYCONF14), 22-25 November 2023 (under the auspices of European Polymer Federation).  
- **Panagiotopoulos C**, Caruso E, Karamitrou M, Korres DM, Charitidis C, Vouyiouka\* S. High-performance and reprocessible epoxy-succinic acid vitrimers.
- 2023**      **Best Oral Presentation Award**, ICSAAM 2023, 10<sup>th</sup> International Conference on Structural Analysis of Advanced Materials, Zakynthos, Greece, 10-14 September 2023  
- **Giotopoulou I**, Barkoula\* N-B, Porfyrus A, Vouyiouka S, Safakas K, Ladavos A, Fotiadou R, Stamatis H, Papageorgiou A, Thanassoulia I, Lambropoulos I. LDPE bioactive films: From the lab to the pilot production – Challenges and perspectives
- 2022**      **1<sup>st</sup> award for the best Diploma Thesis** in Sector IV in Chemical Engineering, NTUA for the student **Marilena Mathioudaki**. Thesis Title: Valorisation of enzymatically-synthesized polymers in encapsulation systems. Advisor: S. Vouyiouka.
- 2021**      **Best Presentation Award**, 2<sup>nd</sup> International Online Conference on Polymer Science - Polymers and Nanotechnology for Industry 4.0, 1-15 November 2021.  
- **Gkountela Chr**, Markoulakis D, Korres D, Vouyiouka\* S. Evaluation of the parameters of poly(butylene succinate) enzymatic polymerization.  
- **Chronaki K**, Mytara A, Papaspyrides C, Beltsios K, Vouyiouka\* S. A novel treatment tool for PLA-based encapsulation systems.  
- **Panagiotopoulos Chr**, Korres D, Vouyiouka\* S. Vitrimerization of poly(butylene succinate) by reactive melt mixing using Zn(II) epoxy-vitrimer chemistry.
- 2021**      **1<sup>st</sup> award for the poster presentation** (Prince Sultan Bin Abdulaziz), EMEC21, 21<sup>th</sup> European Meeting on Environmental Chemistry, 30 November - 3 December 2021, Nivi Sad, Serbia.  
- **Makrynioris K**, Taxeidis G, Nikolaivits E, Gountel C, Vouyiouka S, Nikodinovic-Runic J, Topakas\* E. Discovery of novel polyesterases capable of degrading a variety of synthetic polyesters.
- 2015**      **1<sup>st</sup> award for the best Diploma Thesis** in Sector IV in Chemical Engineering, NTUA for the student **Aris Kamtsikakis**. Thesis Title: Encapsulation of antifouling agents in PLA microcapsules. Advisor: S. Vouyiouka.
- 2012**      **1<sup>st</sup> award for the best Diploma Thesis** in Chemical Engineering, NTUA, and **1<sup>st</sup> award for the best Diploma Thesis at NTUA** for the student **Maria Kanelli**. Thesis Title: Enzymatic synthesis of polyesters. Advisor: S. Vouyiouka.
- 2007**      **3<sup>rd</sup> Place Award for Best Oral Presentation**, ICSAM-2007, The International Conference of Structural Analysis of Advanced Materials, Patras, 2-6 Sept 2007.  
- Papaspyrides\* C, Pavlidou S, Vouyiouka S. Textiles potentials and challenges towards the development of advanced materials.
- 2005**      **Post-Doctoral Research Scholarship**, Greek State Scholarships Foundation (IKY)

- 2003-2005**    **Award D. Thomaidi**, Contribution to Science and Art Progress, NTUA
- 1995**        **Distinguished Award**, Greek State Scholarships Foundation (IKY), Succeeded 1<sup>st</sup> in the School of Chemical Engineering, NTUA

### Indicative Recent Research Funded Programs

- **W2W**: A Wood-to-Wood Cascade Upcycling Valorization Approach, Horizon Europe (RIA) **2024-2027**
- **PRecycling**: Plastics recycling from and for home appliances, toys and textile, Horizon Europe (RIA) **2022-2026**
- **EnZyReMix**: ChemoEnzymatic recycling of Mixed Plastic Waste, Hellenic Foundation for Research & Innovation **2024-2025**
- **SucciVitr**: Comprehending and controlling the dynamics of the adaptable network in biobased vitrimers, PEVE 2020 - NTUA **2020-2023**
- **FUVPP**: Flame-retarded and UV-Protected Polypropylene HFLS Pipes, EPAnEK 2014-2020, GSRT RESEARCH-CREATE-INNOVATE **2020-2023**
- **HYSELF DROPS**: Hybrid thermal spray coatings with self-lubricant properties for wear protection of Internal Combustion Engine piston rings, EPAnEK 2014-2020, GSRT RESEARCH-CREATE-INNOVATE **2020-2023**