



# Nikos Hadjichristidis

Professor of Industrial Chemistry Director of the  
Laboratory of Industrial Chemistry  
[Head of Polymers Group](#)

## Education

B.Sc. in Chemistry, University of Athens (1966),  
Ph.D. in Physical Chemistry-Polymers, State University of Liege (1971),  
D.Sc. in Industrial Chemistry-Polymers, University of Athens (1982),  
Post Doctoral studies at the University of Liege, National Research Council of Canada and  
University of Akron, USA.

## Research Field of Interest

1. Synthesis and characterization of homo- and copolymers with well-defined macromolecular architecture (linear, star, miktoarm star, ring, comb,  $\omega$ -functionalized, etc) and narrow molecular weight distribution.
2. Study of dilute solution ( $[\eta]$ ,  $R_g$ ,  $R_v$ , etc) and solid state properties (morphology,  $T_g$ , etc).
3. Nanostructured Materials.

## Teaching

### Undergraduate:

Polymer Science and Technology

### Graduate:

Introduction to Polymer Science and Technology

Macromolecular Architecture

Polymer Characterization

## Book Authorship

1. Petroleum Chemistry, University of Athens, 1985.
2. Polymer Chemistry, University of Athens, 1990.
3. Block Copolymers: Synthetic Strategies, Physical Properties, and Applications, John Wiley & Sons, Inc, 2003.

## Papers 2008-2009

### Research Publications in Refereed Journals

1. S. Christodoulou, P. Driva, H. Iatrou, N. Hadjichristidis:  
Synthesis and micellization behavior of Janus H-shaped  $A_2BC_2$  terpolymers  
*Macromolecules* **41**, 2607 (2008)
2. P. Fragouli, H. Iatrou, D. Lohse, N. Hadjichristidis:  
Linear pentablock quintopolymers (I-SIDMV) with five incompatible blocks: polystyrene,

polyisoprene-1,4, poly(dimethylsiloxane), poly(tert-butyl methacrylate) and poly(2-vinylpyridine)

*J. Polym. Sci. A: Polym. Chem.* **46**, 3938 (2008)

3. A. Karatzas, H. Iatrou, N. Hadjichristidis, K. Inoue, K. Sugiyama, A. Hirao:

Complex Macromolecular Chimeras

*Biomacromolecules* **9**, 2072 (2008)

4. A. Gitsas, G. Floudas, M. Mondeshki, H. Butt, H. Spiess, H. Iatrou, N. Hadjichristidis:

Effect of chain topology on the self-organization and dynamics of block copolypeptides: from diblock copolymers to stars

*Biomacromolecules* **9**, 1959 (2008)

5. N. Houbenov, A. Nykänen, H. Iatrou, N. Hadjichristidis, J. Ruokolainen, C. Faul, O. Ikkala

Fibrillar constructs from multilevel hierarchical self-assembly of discotic and calamitic supramolecular motifs

*Adv. Funct. Mater.* **18**, 2041 (2008)

6. C. Mayer, E. Zaccarelli, E. Stiakakis, C. Likos, F. Sciortino, A. Munam, M. Gauthier, N.

Hadjichristidis, H. Iatrou, P. Tartaglia, H. Loewen, D. Vlassopoulos:

Asymmetric caging in soft colloidal mixtures

*Nature Materials* **7**, 780 (2008)

7. A. Gitsas, G. Floudas, M. Mondeshki, H. Spiess, T. Aliferis, H. Iatrou, N. Hadjichristidis:

Control of peptide secondary structure and dynamics in poly( $\gamma$ -benzyl-L-glutamate)-b-polyalanine peptides

*Macromolecules* **41**, 8072 (2008)

8. J. Lee, K. Orfanou, P. Driva, H. Iatrou, N. Hadjichristidis, D. Lohse:

Linear and nonlinear rheology of dendritic star polymers: Experiment

*Macromolecules* **41**, 9165 (2008)

9. A. Touris, K. Kostakis, S. Mourmouris, V. Kotzabasakis, M. Pitsikalis, N. Hadjichristidis:

Complex macromolecular architectures based on n-hexyl isocyanate and  $\epsilon$ -caprolactone using titanium-mediated coordination polymerization

*Macromolecules* **41**, 2426 (2008)

10. I. LaRue, M. Adam, E.B. Zhulina, M. Rubinstein, M. Pitsikalis,

N. Hadjichristidis, D.A. Ivanov, R.I. Gearba, D.V. Anokhin and S. S. Sheiko:

Effect of soluble block size on spherical diblock copolymer micelles

*Macromolecules* **41**, 6555 (2008)

11. S.Y. Yu-Su, D.R. Thomas, J.A. Alford, I. LaRue, M. Pitsikalis, N. Hadjichristidis, J. De Simone, A.V. Dobrynin and S. S. Sheiko:

Molding block copolymer micelles: A framework for molding of discrete objects on surfaces

*Langmuir* **24**, 12671 (2008)

12. P. Driva, D. Lohse, N. Hadjichristidis:

Well-defined complex macromolecular architectures by anionic polymerization of styrenic single and double homo/miktoarm star-tailed macromonomers

*J. Polym. Sci. Polym. Chem. Ed.* **46**, 1826 (2008)

13. L. Hilliou, D. Vlassopoulos, S. Pispas, N. Hadjichristidis:

A rheo-optical study of stress-fluctuations coupling in a disordered and entangled diblock copolymer solution

*Macromolecules* **41**, 3328 (2008)

14. Y. Duan, E. Rettler, K. Schneider, R. Schlegel, M. Thunga, R. Weidisch, H. Siesler, M. Stamm, J. Mays, N. Hadjichristidis:

Deformation behavior of sphere-forming trifunctional multigraft copolymer

*Macromolecules* **41**, 4565 (2008)

15. H. Watanabe, Y. Matsumiya, E. Ruymbeke, D. Vlassopoulos, N. Hadjichristidis:

Viscoelastic and dielectric relaxation of a cayley-tree-type polyisoprene: Test of molecular picture of dynamic tube dilation

*Macromolecules* **41**, 6110 (2008)

16. M. Park, G. Sakellariou, S. Pispas, N. Hadjichristidis, R. Advincula:

On the quantitative adsorption behavior of multi-zwitterionic end-functionalized polymers onto gold surfaces

*Colloids and Surfaces A:* **326**, 115 (2008)

17. I. Hiotelis, A. Koutsioubas, N. Spiliopoulos, D. Anastopoulos, A. Vradis, C. Toprakcioglu, A. Menelle, G. Sakellariou, N. Hadjichristidis:

Neutron reflectivity and computer simulation studies of self-assembled brushes formed by centrally adsorbed star polymers

*Macromolecules* **41**, 7648 (2008)

18. V. Chuang, C. Ross, P. Bilalis, N. Hadjichristidis:

Nanoscale rings fabricated using self-assembled triblock terpolymer templates

*ACS Nano* **2**, 2007 (2008)

19. U. Staudinger, R. Schlegel, R. Weidisch, J. Fritzsche, M. Kluppel, G. Heinrich, J. Mays, D. Uhrig, N. Hadjichristidis:

Interpretation of hysteresis behavior of PI-PS multigraft copolymers by adapting to the dynamic flocculation model

*Eur. Polym. J.* **44**, 3790 (2008)

20. M. Thunga, R. Schlegel, U. Staudinger, Y. Duan, R. Weidisch, G. Heinrich, J. Mays, N. Hadjichristidis:

Thermoplastic elastomers on the basis of multigraft and block-double-graft copolymers and electron beam irradiation

*Gummi Kunststoffe* **61**, 597 (2008)

21. V. Kotzabasakis, N. Petzetakis, M. Pitsikalis, N. Hadjichristidis, D. J. Lohse:

Copolymerization of tetradecene-1 and octane-1 with silyl-protected 10-Undecen-1-ol using a C-s-symmetry hafnium metallocene catalyst. A route to functionalized poly (alpha-olefins)

*J. Polym. Sci. Polym. Chem. Ed.* **47**, 876 (2009)

22. J. H. Lee, P. Driva, N. Hadjichristidis, P. J. Wright, S. P. Rucker, D. J. Lohse:

Damping behaviour of entangled comb polymers: Experiment

*Macromolecules* **42**, 1392 (2009)

23. N. Nikopoulou, H. Iatrou, D. J. Lohse, N. Hadjichristidis:

Synthesis of exact comb polybutadienes with two and three branches

*J. Polym. Sci. Polym. Chem. Ed.* **47**, 2597 (2009)

24. D. Priftis, N. Petzetakis, G. Sakellariou, M. Pitsikalis, D. Baskaran, J. W. Mays, N. Hadjichristidis:  
Surface initiated titanium mediated coordination polymerization from catalyst functionalized single and multi walled carbon nanotubes  
*Macromolecules* **42**, 3340 (2009)
25. V. Kotzabasakis, N. Hadjichristidis, G. Papadogianakis:  
Catalytic conversions in aqueous media: Part 3. Biphasic hydrogenation of polybutadiene catalyzed by Rh/TPPTS complexes in micellar systems  
*J. Mol. Cat. A-Chem.* **304**, 95 (2009)
26. Y. X. Duan, M. Thunga, R. Schlegel, K. Sehneider, E. Rettler, R. Weidisch, H. W. Siesler, M. Stamm, J. W. Mays, N. Hadjichristidis:  
Morphology and deformation mechanisms and tensile properties of tetrafunctional multigraft copolymers  
*Macromolecules* **42**, 4155 (2009)
27. A. Karatzas, P. Bilalis, H. Iatrou, M. Pitsikalis, N. Hadjichristidis:  
Synthesis of well-defined functional macromolecular chimeras based on poly(ethylene oxide) or poly(N-vinyl pyrrolidone)  
*Reactive and functional polymers* **69**, 435 (2009)
28. C. Pavlopoulou, S. H. Anastasiadis, H. Iatrou, M. Moshakou, N. Hadjichristidis, G. Portale, W. Bras:  
Micellization of miktoarm star  $S_nIn$  copolymers in block copolymer/homopolymer blends  
*Macromolecules* **42**, 5285 (2009)
29. D. Priftis, G. Sakellariou, N. Hadjichristidis, E. K. Penott, A. T. Lorenzo, A. J. Muller:  
Surface modification of multiwalled carbon nanotubes with biocompatible polymers via ring opening and living anionic surface initiated polymerization. Kinetics and crystallization behaviour  
*J. Polym. Sci. Polym. Chem. Ed.* **47**, 4379 (2009)
30. V. Kotzabasakis, K. Kostakis, M. Pitsikalis, N. Hadjichristidis, D. J. Lohse, T. Mavromoustakos, C. Potamitis:  
Polymerization of higher alpha-olefins using a C-s-symmetry hafnium metallocene catalyst. Kinetics of the polymerization and microstructural analysis  
*J. Polym. Sci. Polym. Chem. Ed.* **47**, 4314 (2009)
31. O. Ikkala, R. H. A. Ras, N. Houbenov, J. Ruokolainen, M. Paakko, J. Laine, M. Leskela, L. A. Berglund, T. Lindstrom, G. Ten Brinke, H. Iatrou, N. Hadjichristidis, C. F. J. Faul:  
Solid state nanofibers based on self-assemblies: from cleaving from self-assemblies to multilevel hierarchical constructs  
*Faraday discussions* **143**, 95 (2009)
32. G. C. Vougioukalakis, I. Stamatopoulos, N. Petzetakis, C. P. Raptopoulou, V. Psycharis, A. Terzis, P. Kyritsis, M. Pitsikalis, N. Hadjichristidis:  
Controlled Vinyl-Type Polymerization of Norbornene with a Nickel(II)

Diphosphinoamine/Methylaluminoxane Catalytic System  
*J. Polym. Sci. Polym. Chem. Ed.* **47**, 5241 (2009)

33. D. Priftis, G. Sakellariou, D. Baskaran, J. W. Mays, N. Hadjichristidis:  
Polymer grafted janus multi-walled carbon nanotubes  
*Soft Matter* **5**, 4272 (2009)
34. A. T. Lorenzo, A. J. Muller, M. C. Lin, H. L. Chen, U. S. Jeng, D. Priftis,  
M. Pitsikalis, N. Hadjichristidis:  
Influence Of Macromolecular Architecture on the Crystallization of  
(PCL<sub>2</sub>)-*b*-(PS<sub>2</sub>) 4-Miktoarm Star Block Copolymers in Comparison to Linear  
PCL-*b*-PS Diblock Copolymer Analogues  
*Macromolecules* **42**, 8353 (2009)
35. A. Elmaci, J. Hacaloglu, C. Kayran, G. Sakellariou, N. Hadjichristidis:  
Thermal decomposition of polystyrene-*b*-poly(2-vinylpyridine) coordinated to  
co nanoparticles  
*Polymer Degradation and Stability* **94**, 2023 (2009)
36. N. Hadjichristidis, H. Iatrou, M. Pitsikalis, G. Sakellariou:  
[Synthesis of Well-Defined Polypeptide-Based Materials via the Ring-Opening  
Polymerization of alpha-Amino Acid N-Carboxyanhydrides](#)  
*Chem. Rev.* **109**, 5528 (2009)
37. K. M. Kirkwood, L. G. Leal, D. Vlassopoulos, P. Driva, N. Hadjichristidis:  
Stress Relaxation of Comb Polymers with Short Branches  
*Macromolecules* **42**, 9592 (2009)
38. R. Schlegel, D. Wilkin, Y. Duan, R. Weidisch, G. Heinrich, D. Uhrig, J. W. Mays,  
H. Iatrou, N. Hadjichristidis:  
Stress softening of multigraft copolymers  
*Polymer* **50**, 6297 (2009)
39. G. Sakellariou, A. Avgeropoulos, N. Hadjichristidis, J. W. Mays, D. Baskaran:  
Functionalized organic nanoparticles from core-crosslinked  
poly(4-vinylbenzocyclobutene-*b*-butadiene) diblock copolymer micelles  
*Polymer* **50**, 6202 (2009)

### Contact

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