



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, ω -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(γ -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 ϵ -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-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_nI_n 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
(PCL₂)-*b*-(PS₂) 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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