3rd Research Team: Polymer Physics Group, Department of Physics, University of Patras,

Webpage: http://ssp.physics.upatras.gr/

Research interests of the Polymer Physics Group:
The research interests and activities of the Polymer Physics Group focus on the study of polymers at interfaces, and interfacial systems in general, using a variety of techniques including neutron and x-ray reflectivity, x-ray diffraction, small-angle neutron scattering, atomic force microscopy (AFM), surface force measurements, FTIR, surface plasmon resonance (SPR) and electron microscopy (EM). These techniques are employed to investigate the structure of polymer chains adsorbed or grafted on inorganic surfaces and the interactions between such adsorbed layers. In recent years, the group has conducted extensive studies of the behavior of polymer brushes subjected to strong shear and continues its investigation of nanoporous materials based on the integration of inorganic membranes with well-characterized pore structure and stimuli-responsive polymer brushes.

List of Research group's top 10 publications in journals	**Citations**
1. S. Karagiovanaki, A. Koutsioubas, N. Spiliopoulos, D. L. Anastassopoulos, A. A. Vradis, C. Toprakcioglu, and A. Siokou: "*Adsorption of end-attaching block copolymers in nanoporous alumina*", **Journal of Polymer Science, Part B: Polymer Physics, 48, 1676-1682, (2010).** http://onlinelibrary.wiley.com/doi/10.1002/polb.21972/pdf	-
2. N. Spiliopoulos, A. G. Koutsioubas, D. L. Anastassopoulos, A. A. Vradis, C. Toprakcioglu, A. Menelle, G. Mountrichas, S. Pispas.: "*Neutron reflectivity study of free-end distribution in polymer brushes*", **Macromolecules, 42, 6209-6214, (2009).** http://pubs.acs.org/doi/abs/10.1021/ma900971k	1
3. A. G. Koutsioubas, N. Spiliopoulos, D. L. Anastassopoulos, A. A. Vradis, C. Toprakcioglu: "*Formation of polymer brushes inside cylindrical pores: A computer simulation study*", **Journal of Chemical Physics, 131, 044901, (2009).** http://jcp.aip.org/jcpsa6/v131/i4/p044901_s1	1
4. I. Hiotelis, A. G. Koutsioubas, N. Spiliopoulos, D. L. Anastassopoulos, A. 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, 7648-7655, (2008).** http://pubs.acs.org/doi/abs/10.1021/ma702749z	2
5. D. L. Anastassopoulos, N. Spiliopoulos, A. A. Vradis, C. Toprakcioglu, S. M. Baker and A. Menelle: "*Shear-Induced Desorption in Polymer Brushes*", **Macromolecules, 39, 8901-8904 (2006).** http://pubs.acs.org/doi/abs/10.1021/ma061532o	3
6. A. G. Koutsioubas, N. Spiliopoulos, D. Anastassopoulos, A. A. Vradis, G. D. Priftis : "*Nanoporous alumina enhanced surface plasmon resonance sensors*", **Journal of Applied Physics, 103(9), art. No. 094521 (2008).** http://jap.aip.org/resource/1/japiau/v103/i9/p094521_s1	5
7. A. G. Koutsioubas, N. Spiliopoulos, D. Anastassopoulos, A. A. Vradis, G. D. Priftis : "*Surface plasmon resonance as a tool for the estimation of absorbed polymeric layer characteristics : Theoretical considerations and experiment*", **Journal of Polymer Science, Part B: Polymer Physics, 45(15), 2060-2070 (2007).** http://onlinelibrary.wiley.com/doi/10.1002/polb.21203/abstract	4
8. A. G. Koutsioubas, N. Spiliopoulos, D. L. Anastassopoulos,A. A. Vradis, C. Toprakcioglu, G. D. Priftis: "*Adsorption behavior of PS-PEO diblock copolymers on silver and alumina surfaces: A surface plasmon resonance study*", **Journal of Polymer Science, Part B: Polymer Physics, 44(11), 1580-1591 (2006).** http://onlinelibrary.wiley.com/doi/10.1002/polb.20806/abstract;jsessionid=40744F9AA4015413652CD564FE45CB34.d01t03	-

9. H. Retsos, A. F. Terzis, S. H. Anastasiadis, D. L. Anastassopoulos, C. Toprakcioglu, D. N. Theodorou, G. S. Smith, A. Menelle, R. E. Gill, G. Hadziioannou, Y. Gallot: "*Mushrooms and brushes in thin films of diblock copolymer/homopolymer mixtures*", **Macromolecules, 35(3), 1116-1132 (2002).** http://pubs.acs.org/doi/abs/10.1021/ma011174j	11
10. S. M. Baker, G. S. Smith, D. L. Anastassopoulos, C. Toprakcioglu,, A. A. Vradis, D. G. Bucknall: "*Structure of polymer brushes under shear flow in a good solvent*", **Macromolecules, 33(4), 1120-1122 (2000).** http://pubs.acs.org/doi/abs/10.1021/ma991499o	31

Short CVs for the main research team members

1. Christos Toprakcioglu, (team leader). Professor of Physics, Department of Physics, University of Patras. Web page: http://ssp.physics.upatras.gr/ctop.html

Professor Toprakcioglu is the head of the Polymer Physics lab of Physics Department, University of Patras. Professor C. Toprakcioglu received his BSc degree from the George Washington University in 1976 and his PhD from Cambridge University in 1981. He served as Research Fellow in the Department of Physics, University of Kent (1981-1984), Research Associate in the Department of Physics, University of Cambridge (1984-1986), Lecturer, in the Department of Physics, University of Cambridge (1986-1993), Senior Scientific Officer, in the Agricultural and Food Research Council, UK (1985-1991), and Associate Professor, in the Department of Physics, University of Patras (1993-2002), where he has been serving as a Full Professor since 2002. He has taught numerous undergraduate and graduate courses and has supervised 17 PhD/MSc dissertations. He has 50 publications in international journals and is a co-author of chapters in 3 books. His publications have been cited more than 1800 times and his h-index is 19. His current interests are focused on: The structure of polymer chains adsorbed or grafted on inorganic surfaces and the interactions between adsorbed polymer layers. Polymers chains in nanoconfinement. Stimuli-responsive polymer brushes. Nanoporous materials. In his research he uses several experimental techniques including: X-ray and neutron reflectivity, X-ray diffraction, neutron scattering, Atomic Force Microscopy (AFM), Surface Force measurements.

2. Alexandros Vradis, (main researcher). Assoc. Professor, Chairman of the Department of Physics, University of Patras, Solid State Physics Lab .Web page : http://ssp.physics.upatras.gr/vradis.html

Dr Alexandros Vradis received his BSc degree in Physics from the University of Patras (1974) and his PhD in Physics from the Department of Physics of the same University. He served as Visiting Research Fellow in the Department of Electrical and Electronics Engineering of the University of Kent (1984-1986). He has served as teaching staff in the Department of Physics of Patras University since 1976 and he is currently Associate Professor and Head of the Department. He has taught numerous undergraduate and graduate courses mainly in the area of Solid State Physics. He has 25 publications in international journals over 150 citations. His current research interests are in the following areas: Electrochemical preparation of nanoporous materials for various applications. Thermal thin film deposition and characterization with: X Ray diffraction (XRD), X Ray and neutron reflectivity, Atomic Force Microscopy (AFM). Surfaces and interfaces modified by adsorbed polymer layers.