

# Curriculum Vitae

## Yuri Roiter, Ph.D.

### A. Education

| <i>Institution &amp; Location</i>  | <i>Degree /<br/>Certificates</i>                    | <i>Year<br/>Conferred</i> | <i>Field of Study</i>  |
|--|---|---------------------------|--|
| Lviv Polytechnic National University, Lviv, Ukraine  | Chemical Engineering                                | 1993                      | Manufacture and processing of polymer materials. Thesis title: "Peroxide modification of fillers for polymer composites"   |
| University of Ulm, Ulm, Germany  | Certificate of the Scanning Probe Microscopy Course | 1999                      | Scanning probe microscopy (including atomic force microscopy), applications for the study of polymers  |
| The Supreme Certification Committee of Ukraine, Kyiv, Ukraine; Lviv Polytechnic National University, Lviv, Ukraine | Ph.D. in Chemistry                                  | 2003                      | Polymer science (Specialty: high molecular weight compounds). Dissertation title: "Synthesis of grafted peroxide copolymers for polymer blend compatibilization" |

### B. Awards and Academic Honors

- NSF-NATO Postdoctoral fellowship, USA/International. "Single Polyelectrolyte Molecule in External Electric Field" Award No: DGE-0411649. Time Period: October 1, 2004 - September 30, 2005.
- Stipend of Cabinet of Ministers of Ukraine for Young Scientists (in accordance with the decision of the Board of Ministry of Education and Science of Ukraine No.5/4-13 on April 23, 2004 and the decree of the Presidium of Committee on State Premiums of Ukraine in science and engineering No.2 on June 23, 2004), 2004.
- Grant of German Saxony Ministry of Art and Education for scientific collaboration in the field of polymer science with Institute of Polymer Research, Dresden, Germany, October 10, 2001 - December 5, 2001.
- Internships (AFM courses and studies) in the University of Ulm, Ulm, Germany, 1998, 1999.
- Supervision of the scientific work of undergraduate and graduate students.

### C. Memberships

- Member of American Chemical Society, USA.
- Member of Material Research Society, USA.

### D. Languages

Ukrainian (native), Russian (native), fluent English.

### E. Employment and Experience

- Research Assistant Professor, Clarkson University, NY, USA, May 2007 - Present.
- Research Associate, Clarkson University, NY, USA, October 2004 - May 2007.
- Staff scientist, Lviv Polytechnic National University, Ukraine, April 2003 - October 2005.
- Scientist, Lviv Polytechnic National University, Ukraine, November 1996 - March 2003.
- Full time post-graduate student (research trainee), Lviv Polytechnic National University, Ukraine, September 1993 - October 1996.
- Full time undergraduate/graduate student, Lviv Polytechnic National University, Ukraine, Sep.1988 - June 1993.

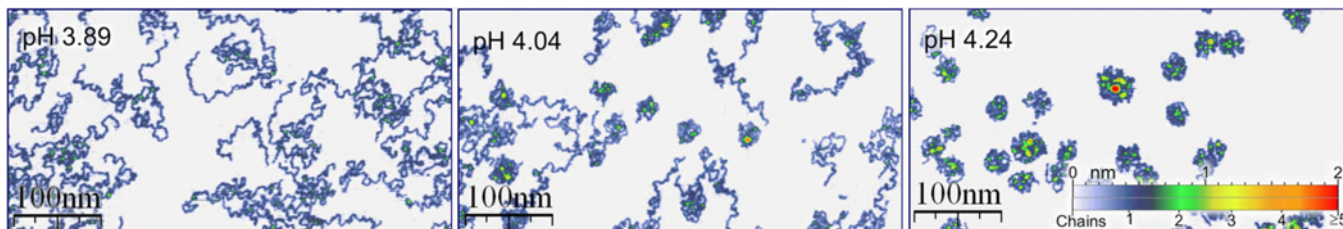
### F. Research Accomplishments

Yuri Roiter, working in Prof. S. Minko's NanoStructured Materials Group, is the first scientist in the world, who:

- is performing an AFM study of Nafion single molecules on different substrates (HOPG, mica, Si-wafers) adsorbed from different media (ethanol, water, ethanol-water mixtures at pH from 1 to ~5.5; aliphatic solvents) *in situ* and under air under the project financed by General Motors (Fuel Cell Activities).
- visualized *thin (~0.4 nm) and short (20-200 nm length) flexible polymer molecules under liquid in subtle details* (see images below) (NSF-NATO grant); (See <http://en.wikipedia.org/wiki/Polymer>, [http://en.wikipedia.org/wiki/Single-molecule\\_experiment](http://en.wikipedia.org/wiki/Single-molecule_experiment) & [http://en.wikipedia.org/wiki/Atomic\\_force\\_microscope#Tapping\\_Mode](http://en.wikipedia.org/wiki/Atomic_force_microscope#Tapping_Mode))
- performed the study of those molecule movement on surface under the application of electric field (NSF-NATO grant);
- determined the formation of holes in lipid bilayer around 1.2 to 22 nm polar nanoparticles and quantum dots via the *in situ* AFM visualization of the *formation of lipid bilayers on rough solid surfaces in buffer medium*. (Corning Inc.); (See [http://en.wikipedia.org/wiki/Lipid\\_bilayer#Characterization\\_methods](http://en.wikipedia.org/wiki/Lipid_bilayer#Characterization_methods));

Other scientific works of Yuri Roiter performed recently include:

- study of *thin surface polymer brushes/films and hybrid surface brushes/films* under liquid medium using an AFM and Scanning Force Microscopy (SFM) (includes works performed for NSF, U.S. Army research office, and National Textile Center grants);
- AFM study of *ABC terpolymers and their micelles* (collaborative work with University of Patras, Greece).



AFM images of single thin flexible polymer molecules under aqueous medium of different pH. Molecules are 0.4 nm thick in the monolayer, and 20-200 nm long. Transition from extended coils to collapsed globules is shown. Corresponding research results were published in *Journal of the American Chemical Society* (Roiter, Y.; Minko, S. *Journal of the American Chemical Society* **2005**, *127*(45), 15688-15689), presented in Veeco Calendar 2006 and Veeco Nanoteater (Veeco Instruments, USA, is a world leading producer of scanning probe (including atomic force) microscopy instruments)

Several times, Yuri Roiter modified the construction of atomic force microscope (MultiMode, Veeco) to achieve his research goals. As main modifications, he designed, built and added:

- the thermal stage to adjust and maintain the temperature of the sample under liquid in atomic force microscope between ambient conditions and 140 °F;
- the electrodes to the microscope fluid cell to study the movement of single molecules on solid surface under liquid.

*Techniques* used for the research work starting from preparation of samples through the work using a corresponding equipment, and finishing with the processing and interpretation of the results obtained:

- Scanning Probe Microscopy (SPM) constituents: Atomic Force Microscopy (AFM) in tapping, pulse-force and contact modes under air atmosphere and liquid (aqueous and ethanol media); and Scanning Force Microscopy (SFM) under air atmosphere and aqueous media. Certificate of attending the Scanning Probe Microscopy Intensive Course in University of Ulm (Germany) was received 23rd July 1999;
- Ellipsometry and multilayer ellipsometric mapping;
- FTIR spectroscopy;
- UV spectroscopy;
- High performance liquid chromatography;
- Optical Microscopy in polarized light distinguishing optically active objects;
- Full second-order multi-factorial orthogonal experiment design and performance;
- Turbidimetry and polymer fractionating;
- Amperometric iodometry;
- Polymer blending;
- Polymerization and various copolymerization and grafting reactions.

*Techniques* Yuri Roiter used when he prepared the samples and processed and interpreted the results only:

- FTIR-ATR spectroscopy;
- <sup>1</sup>H NMR Spectroscopy;
- <sup>13</sup>C NMR Spectroscopy;
- Scanning electron microscopy;
- Polymer rheology (viscoelastic properties) investigation.

*Previous scientific interests* of Yuri Roiter include:

- polymer surface modification;
- polymer blends;
- polymer colloidal systems;
- studies of peroxide compounds.

*Participation in research grant and contracts:*

- Contract for General Motors Corporation "Interaction of Nafion with C substrates", (2008-present). The research is performed in Clarkson University, Potsdam, NY, USA.

- Contract on request of Corning Inc. (Corning, NY, USA), "Formation of Supported Lipid Bilayers (SLB) on Physically Textured Silica Substrates", (2005-2007). The research was performed in Clarkson University, Potsdam, NY, USA.
- Additionally participated the projects by the performance of AFM and SFM studies under liquid media for grants by National Science Foundation (DMR-0602528 "Materials World Network: Design of Responsive Materials via Mixed Polymer Brush Approach (Continuing Grant)"), U.S. Army research office (W911NF-05-1-0339 "Smart Responsive Nanocomposites for Soldier Protection"), and National Textile Center (C04-CL06 "Ultrahydrophobic Fibers: Lotus Approach") (2005-2007).
- NSF-NATO grant "Single Polyelectrolyte Molecule in External Electric Field" (DGE-0411649) (2004-2005). The research was performed in Clarkson University, Potsdam, NY, USA.
- Grant of Science and Technology Center, Ukraine (STCU) #1447 "The New Micellar Techniques for the Fabrication of Magnetic, Electroconductive and Antiradiation Polymer Colloidal Systems & Control of their Properties" (2000-2002). Financed by the governments of different countries including the USA (<http://www.stcu.int>). The research was performed at Lviv Polytechnic National University, Lviv, Ukraine.
- Contract on request of the Sherwin-Williams Company (Cleveland, OH, USA) "Latex coating with adhesion to plastics" (2000). The research was performed at Lviv Polytechnic National University, Lviv, Ukraine.

*During 1997-2004, Yuri also participated in 5 scientific research projects in Lviv Polytechnic National University in Ukraine financed by Ukrainian Ministry of Education and Science. Project topics included studies of homopolymers, graft and random copolymers, polyperoxides, polymer blends, composite and biocompatible materials.*

## G. Publications

### *Chapters in books:*

1. Motornov, M.; [Roiter, Y.](#); Tokarev, I.; Minko, S. **Colloidal Systems on the Nanometer Length Scale** In *Handbook of Surface and Colloid Chemistry*, Third Edition; Birdi, K. S., Ed.; CRC Press: Boca Raton, **2008**; Ch. 5, pp 131-154. [Details](#)
2. Minko, S.; Motornov, M.; [Roiter, Y.](#); Tokarev, I. **Nanostructured Functional Polymer Assemblies** In *Polymeric Nanostructures and Their Applications*; Nalwa, H. S., Ed.; American Scientific Publishers: Stevenson Ranch, California, **2007**; Vol. 1, Ch. 2, pp. 61-122. [Details](#)

### *Articles:*

1. Sheparovych, R.; [Roiter, Y.](#); Yang, J.; Kopeček, J.; Minko, S. **Stimuli-Responsive Properties of Peptide-Based Copolymers Studied via Directional Growth of Self-Assembled Patterns on Solid Substrate**. *Biomacromolecules* **2009**, *10*(7), 1955-1961. [Details](#)
2. [Roiter, Y.](#); Ornatska, M.; Rammohan, A. R.; Balakrishnan, J.; Heine, D. R.; Minko, S. **Interaction of Lipid Membrane with Nanostructured Surfaces**. *Langmuir* **2009**, *25*(11), 6287-6299. [Details](#)
3. Hinrichs, K.; Aulich, D.; Roiter, Y.; Minko, S. **In-situ infrared spectroscopic monitoring of the growth of lipid layers**. *PMSE Preprints* **2009**, *101*, 1058.
4. Gopishetty, V.; [Roiter, Y.](#); Tokarev, I.; Minko, S. **Multiresponsive Biopolyelectrolyte Membrane**. *Advanced Materials* **2008**, *20*(23), 4588-4593. [Details](#)
5. [Roiter, Y.](#); Ornatska, M.; Rammohan, A. R.; Balakrishnan, J.; Heine, D. R.; Minko, S. **Interaction of Nanoparticles with Lipid Membrane**. *Nano Letters* **2008**, *8*(3), 941-944. [Details](#)
6. Tsitsilianis, C.; [Roiter, Y.](#); Katsampas, I.; Minko, S. **Diversity of Nanostructured Self-Assemblies from a pH-Responsive ABC Terpolymer in Aqueous Media**. *Macromolecules* **2008**, *41*(3), 925-934. [Details](#)
7. [Roiter, Y.](#); Minko, S. **Responsive behavior of single polymer molecules: visualization with AFM**. *PMSE Preprints* **2008**, *99*, 545.
8. [Roiter, Y.](#); Minko, S. **Adsorption of polyelectrolyte vs. surface charge: in situ single molecule AFM experiments on similarly, oppositely and heterogeneously charged surfaces**. *Journal of Physical Chemistry B* **2007**, *111*(29), 8597-8604. [Details](#)
9. [Roiter, Y.](#); Minko, S. **Single molecules of polymers: AFM imaging under liquid medium**. *Polymer Preprints* **2007**, *48*(2), 522-523.

10. Motornov, M.; Sheparovych, R.; Tokarev, I.; [Roiter, Y.](#); Minko, S. **Liquid hybrid polymer brushes with rapid reversible switching behavior.** *Polymer Preprints* **2007**, *48(1)*, 719-720.
11. Motornov, M.; Sheparovych, R.; Tokarev, I.; [Roiter, Y.](#); Minko, S. **Nonwetable Thin Films from Hybrid Polymer Brushes Can Be Hydrophilic.** *Langmuir* **2007**, *23(1)*, 13-19. [Details](#)
12. [Roiter, Y.](#); Jaeger, W.; Minko, S. **Conformation of single polyelectrolyte chains vs. salt concentration: Effects of sample history and solid substrate (Invited paper).** *Polymer* **2006**, *47(7)*, 2493-2498. [Details](#)
13. Tsitsilianis, C.; Katsampas, I.; [Roiter, Y.](#); Minko, S.; Stavrouli, N.; Gotsopoulos, M. **Transformable self-assemblies from responsive double-hydrophilic ABC terpolymers in aqueous media.** *Polymer Preprints* **2006**, *47(2)*, 798-799.
14. [Roiter, Y.](#); Minko, S. **AFM Single Molecule Experiments at the Solid-Liquid Interface: In Situ Conformation of Adsorbed Flexible Polyelectrolyte Chains.** *Journal of the American Chemical Society* **2005**, *127(45)*, 15688-15689. [Details](#)
15. Lupitskyy, R.; [Roiter, Y.](#); Tsitsilianis, C.; Minko, S. **From Smart Polymer Molecules to Responsive Nanostructured Surfaces.** *Langmuir* **2005**, *21(19)*, 8591-8593. [Details](#)
16. Minko, S.; [Roiter, Y.](#) **AFM single molecule studies of adsorbed polyelectrolytes.** *Current Opinion in Colloid & Interface Science* **2005**, *10(1-2)*, 9-15. [Details](#)
17. Katsampas, I.; [Roiter, Y.](#); Minko, S.; Tsitsilianis, C. **Multifunctional Stimuli Responsive ABC Terpolymers: From Three-Compartment Micelles to Three-Dimensional Network.** *Macromolecular Rapid Communications* **2005**, *26(17)*, 1371-1376. [Details](#)
18. [Roiter, Y.](#); Minko, S. **Adsorbed polyelectrolyte single molecules: AFM visualization under liquid.** *PMSE Preprints* **2005**, *93*, 717.
19. Voronov, S.; Samaryk, V.; [Roiter, Y.](#); Pionteck, J.; Pötschke, P.; Minko, S.; Tokarev, I.; Varvarenko, S.; Nosova, N., **Compatibilization of polymer blends with high-molecular-weight peroxides.** *J. Appl. Polym. Sci.* **2005**, *96(1)*, 232-242. [Details](#)
20. Nosova, N.; [Roiter, Y.](#); Samaryk, V.; Varvarenko, S.; Stetsyshyn, Y.; Minko, S.; Stamm, M.; Voronov, S. **Polypropylene surface peroxidation with heterofunctional polyperoxides** *Macromol. Symp.* **2004**, *210*, 339-348. [Details](#)
21. [Roiter, Y.](#); Samaryk, V.; Varvarenko, S.; Nosova, N.; Tarnavchyk, I.; Pionteck, J.; Pötschke, P.; Voronov, S. **Peroxide-containing compatibilizer for polypropylene blends with other polymers** *Macromol. Symp.* **2004**, *210*, 209-217. [Details](#)
22. Samaryk, V. Ya.; [Roiter, Y. V.](#); Nosova, N. G.; Stetsyshyn, Y. B.; Varvarenko, S. M.; Voronov, S. A. **Activation of polymer surface with polyperoxides: design of nanolayers by grafting from or grafting to** *Reports of the National Academy of Sciences of Ukraine (RNAS of Ukraine, in Ukrainian: Dopovidi Natsional'noi Akademii Nauk Ukraini)* **2004**, *4*, 136-141. (in Ukrainian)
23. Voronov, S. A.; Samaryk, V. Ya.; [Roiter, Y. V.](#); Pionteck, J.; Pötschke, P.; Minko, S. S.; Varvarenko, S. M.; Nosova, N. G. **Polymer blend compatibilization using high molecular weight peroxide-containing precompatibilizers** *Questions on Chemistry and Chemical Technology (Voprosy Khimii i Khimicheskoy Tekhnologii)* **2004**, *1*, 96-100. (in Ukrainian)
24. Stetsyshyn, Y. B.; [Roiter, Y. V.](#); Varvarenko, S. M.; Voronov S. A. **Polypropylene surface modification via 'grafting from' and 'grafting to' techniques using heterofunctional polyperoxide** *Visnyk Of the Lviv Polytechnic National University (Visnyk of LPNU)* **2003**, *488*, 339-343. (in Ukrainian)
25. [Roiter, Y. V.](#); Stetsyshyn, Y. B.; Samaryk, V. Ya.; Nosova, N. G.; Tarnavchyk, I. T. **Study of polymer surface modification with heterofunctional polyperoxide using atomic force microscopy** *Visnyk of LPNU* **2003**, *488*, 318-321. (in Ukrainian)
26. Samaryk, V. Ya.; Varvarenko, S. M.; Zaichenko, O. S.; Nosova, N. G.; [Roiter, Y. V.](#); Mitina, N. Ye.; Gevus, O. I.; Tarnavchyk, I. T. **Synthesis and properties of peroxide-containing telechelic poly(vinyl acetate) and poly(vinyl alcohol)** *RNAS of Ukraine* **2002**, *12*, 118-123. (in Ukrainian)
27. Voronov, S. A.; Samaryk, V. Ya.; Varvarenko, S. M.; Nosova, N. G.; [Roiter, Y. V.](#) **Preparation of polymeric thermoplast/thermoset blends by using high-molecular weight peroxide-containing precompatibilizers** *RNAS of Ukraine* **2002**, *11*, 144-149. (in Ukrainian)
28. [Roiter, Y. V.](#); Samaryk, V. Ya.; Varvarenko, S. M.; Nosova, N. G.; Voronov, S. A. **Kinetic regularities of grafted peroxide precompatibilizer synthesis** *Visnyk of LPNU* **2002**, *461*, 159-162. (in Ukrainian)

29. Nosova, N. G.; Samaryk, V. Ya.; Varvarenko, S. M.; Roiter, Y. V.; Tarnavchyk, I. T.; Voronov, S. A. **Effect of synthesis conditions on general characteristics of copolymers of 2-tert-butylperoxy-2-methyl-5-hexene-3-yne with higher (meth)acrylates** *Visnyk of LPNU* **2002**, *461*, 142-147. (in Ukrainian)
30. Voronov, S. A.; Samaryk, V. Ya.; Varvarenko, S. M.; Nosova, N. G.; Roiter, Y. V. **Effect of conformation of polyperoxide molecules on thermolysis of peroxide groups** *RNAS of Ukraine* **2002**, *6*, 147-150. (in Ukrainian)
31. Voronov, S. A.; Samaryk, V. Ya.; Varvarenko, S. M.; Nosova, N. G.; Roiter, Y. V. **Creation of interfacial-active peroxide-containing graft copolymers for compatibilization of polyolefin blends** *RNAS of Ukraine* **2001**, *5*, 132-135. (in Ukrainian)
32. Roiter, Y.; Samaryk, V.; Nosova, N.; Varvarenko, S.; Pötschke, P.; Voronov, S. **Radical Processes for the Creation of Compatibilizing Layers in Polyolefin Blends** *Macromol. Symp.* **2001**, *164*, 377-387. Details
33. Roiter, Y. V.; Nosova, N. G.; Voronov, S. A.; Samaryk, V. Ya.; Varvarenko, S. M. **Polyethylene/polypropylene reactive blending with utilization of peroxide-containing compatibilizer** *Visnyk of LPNU* **2000**, *395*, 82-85. (in Ukrainian)
34. Roiter, Y. V.; Nosova, N. G. **Radical grafting of polypropylene chains to peroxide-containing oligomers** *Visnyk of LPNU* **1999**, *361*, 62-63. (in Ukrainian)
35. Varvarenko, S. M.; Roiter, Y. V.; Nosova, N. G. **Features of 2-tert-butylperoxy-2-methyl-5-hexene-3-yne copolymerization with higher acrylic esters** *Visnyk of LPNU* **1999**, *361*, 69-72. (in Ukrainian)
36. Samaryk, V. Ya.; Varvarenko, S. M.; Roiter, Y. V.; Nosova, N. G. **Kinetic features of hydroperoxide group decomposition in peroxide-containing oligomer in the presence of two-valent cobalt ions** *Visnyk of LPNU* **1999**, *374*, 76-79. (in Ukrainian)
37. Voronov, S. A.; Kiselyov, Eu. M.; Roiter, Y. V.; Budishevskaya, O. G.; Panchenko, Y. V. **Effect of promoters containing hydroperoxide on strength of the adhesion contact between lacquer coating and the surface of polymer substrates** *RNAS of Ukraine* **1998**, *1*, 170-174. (in Russian)
38. Voronov, S. A.; Kiselyov, Eu. M.; Nosova, N. G.; Roiter, Y. V.; Donchak, V. A.; Khryakov, S. V. **Interaction of oligomer peroxides with polymer substrates** *RNAS of Ukraine* **1997**, *11*, 135-139. (in Ukrainian)
39. Voronov, S. A.; Kiselyov, Eu. M.; Minko, S. S.; Budishevskaya, O. G.; Roiter, Y. V. **Structure and reactivity of peroxide monomers** *J. Polym. Sci., Part A, Polym. Chem.* **1996**, *34*, 2507-2511. Details
40. Kiselyov, Eu. M.; Varvarenko, S. M.; Samaryk, V. Ya.; Roiter, Y. V.; Voronov, S. A. **Kinetic of decomposition of the hydroperoxide group of 2,2-hydroperoxymethylhexenyne-5,3 in aqueous medium** *RNAS of Ukraine* **1996**, *11*, 134-138. (in Ukrainian)
41. Kiselyov, Eu. M.; Panchenko, Y. V.; Samaryk, V. Ya.; Roiter, Y. V.; Voronov, S. A. **Reaction medium effect on kinetics of thermal decomposition of hydroperoxide monomers** *RNAS of Ukraine* **1996**, *10*, 132-138. (in Russian)

### ***Special/unusual publications:***

1. Sheparovych, R.; Roiter, Y.; Motornov, M.; Tokarev, I.; Minko, S. **"Nanoelectrode Array for Biosensor Applications"** *Veeco calendar* **2009**, *April page*. (contest-winning image published by **Veeco Instruments, USA**).
2. Tokarev, I.; Roiter, Y.; Tokareva, I.; Motornov, M.; Minko, S. **"Jiggle the Gel"** *Veeco calendar* **2008**, *January page*. (contest-winning image published by **Veeco Instruments, USA**).
3. Tokarev, I.; Gopishetty, V.; Roiter, Y.; Minko, S. **"The Tokarev Web. AFM image of nanofiber web fabricated by a template method from the mixture of alginate and gelatin"** *Veeco calendar* **2007**, *January page*. (contest-winning image published by **Veeco Instruments, USA**).
4. Tokarev, I.; Gopishetty, V.; Roiter, Y.; Minko, S. **"The Tokarev Web" 2006**, *Veeco Nanospectator* (on-line presentation of best SPM works by **Veeco Instruments**), [http://www.veeco.xcentric.com/library/nanospectator\\_detail.php?type=product&id=630&app\\_id=178](http://www.veeco.xcentric.com/library/nanospectator_detail.php?type=product&id=630&app_id=178).
5. Roiter, Y.; Minko, S. **"Digital Instruments Multimode AFM images of P2VP single molecules"** *Veeco calendar* **2006**, *March page*. (contest-winning image published by **Veeco Instruments, USA**).
6. Roiter, Y.; Minko, S. **"Poly(2-vinylpyridine) single molecules" 2005**, *Veeco Nanospectator* (on-line presentation of best SPM works by **Veeco Instruments**), [http://www.veeco.com/library/nanospectator\\_detail.php?type=application&id=467&app\\_id=9](http://www.veeco.com/library/nanospectator_detail.php?type=application&id=467&app_id=9).
7. Roiter, Y. **"ChemOffice 2004: The First Week of Use"** *ChemNews.Com* **2004**, *14.2*, 18-21 (review of software product of **CambridgeSoft Corporation**). Online version: <http://chembionews.cambridgesoft.com/art.cfm?language=&S=376>.
8. Roiter, Y. V. **Synthesis of grafted peroxide copolymers of 2-tert-butylperoxy-2-methyl-5-hexene-3-yne for compatibilization of polymer blends**, Author abstract of Dissertation for a candidate's (Ph.D.) degree in chemical

sciences by speciality 02.00.06 - high molecular weight compounds, Lviv Polytechnic National University: Lviv, **2002**, 19 p. (in Ukrainian)

9. Roiter, Y. "**Logger**" ("Lesorub" in Russian) *Zvezdnaya Doroga* (Russian Journal of Contemporary Science Fiction) **2002**, 2 (**Sci-Fi Story** in Russian, announced in <http://www-lat.rusf.ru/starroad/startrack/02-2002.htm>).

### Patents

1. *Ukraine Patent 56799A*, Intern'l Class C 08 F 002/06 **Method of obtaining telechelic polymers with different end functional groups** *Bratyshchak, M. M.; Samaryk, V. Ya.; Varvarenko, S. M.; Roiter, Y. V.; Nosova, N. G.; Zaichenko, O. S. (Ukraine), Brostow, W. (USA)*; Lviv Polytechnic National University; Filed 17.09.2002; Published 15.05.2003; Bull.No.5. (in Ukrainian)
2. *Ukraine Patent 53072A*, Intern'l Class C 08 J 007/12 **Method of polymer surface modification** *Voronov, S. A.; Samaryk, V. Ya.; Varvarenko, S. M.; Nosova, N. G.; Roiter, Y. V. (Ukraine)*; Lviv Polytechnic National University; Filed 26.02.2002; Published 15.01.2003; Bull.No.1. (in Ukrainian)
3. *Ukraine Patent 50391A*, Intern'l Class C 08 F 004/36 **Method of obtaining polymers with end peroxide groups** *Zaichenko, O. S.; Samaryk, V. Ya.; Varvarenko, S. M.; Roiter, Y. V.; Nosova, N. G.; Gevus, O. I. (Ukraine)*; Lviv Polytechnic National University; Filed 03.01.2002; Published 15.10.2002; Bull.No.10. (in Ukrainian)
4. *Ukraine Patent 46481A*, Intern'l Class C 08 J 007/12 **Method of polymer surface modification** *Voronov, S. A.; Samaryk, V. Ya.; Varvarenko, S. M.; Nosova, N. G.; Roiter, Y. V. (Ukraine)*; Lviv Polytechnic National University; Filed 24.07.2001; Published 15.05.2002; Bull.No.5. (in Ukrainian)
5. *Ukraine Patent 46318A*, Intern'l Class C 08 L 023/02 **Method of preparation of unsaturated polyester resin compositions with polyolefins** *Voronov, S. A.; Samaryk, V. Ya.; Varvarenko, S. M.; Roiter, Y. V.; Nosova, N. G. (Ukraine)*; Lviv Polytechnic National University; Filed 19.06.2001; Published 15.05.2002; Bull.No.5. (in Ukrainian)
6. *Ukraine Patent 46317A*, Intern'l Class C 08 L 023/02 **Method of preparation of unsaturated polyester resin compositions with polyolefins** *Voronov, S. A.; Samaryk, V. Ya.; Varvarenko, S. M.; Roiter, Y. V.; Nosova, N. G. (Ukraine)*; Lviv Polytechnic National University; Filed 19.06.2001; Published 15.05.2002; Bull.No.5. (in Ukrainian)

### Symposia/conferences:

1. Hinrichs, K.; Aulich, D.; Roiter, Y.; Minko, S. ***In situ infrared spectroscopic monitoring of the growth of lipid layers***, 238th ACS National Meeting, August 16-20, 2009, Washington, DC, United States, **2009**; PMSE-169.
2. Minko, S.; Roiter, Y. ***Barrier Function of Lipid Membrane in the Interaction with Nanostructures***, 2009 APS March Meeting, March 16-20, 2009, Pittsburgh, PA, United States, **2009**; J39.35.
3. Aulich, D.; Bittrich, E.; Reichelt, S.; Uhlmann, P.; Luzinov, I.; Hoy, O.; Minko, S.; Roiter, Y.; Eichhorn, K.-J.; Stamm, M.; Esser, N.; Hinrichs, K. ***In-situ infrared ellipsometry of solid-liquid interfaces of ultrathin organic functional films***, 5th Workshop Ellipsometry, March 2-4, 2009, Zweibrücken, Germany, **2009**.
4. Roiter, Y.; Minko, S. ***Responsive behavior of single polymer molecules: Visualization with AFM***, 236th ACS National Meeting, August 17-21, 2008, Philadelphia, PA, United States, **2008**; PMSE-304
5. Roiter, Y.; Ornatska, M.; Rammohan, A. R.; Balakrishnan, J.; Heine, D. R.; Minko, S. ***Nanoparticle interaction with lipid bilayer membrane: Pores or integrity?***, 236th ACS National Meeting, August 17-21, **2008**, Philadelphia, PA, United States, 2008; COLL-183.
6. Roiter, Y.; Minko, S. ***Single molecules of polymers: Imaging under liquid using AFM*** (for oral presentation), 234th ACS National Meeting, August 19-23, 2007, Boston, MA, United States, **2007**; PHYS-619..
7. Roiter, Y.; Minko, S. ***Single molecules of polymers: AFM imaging under liquid medium*** (for poster presentation), 234th ACS National Meeting, August 19-23, 2007, Boston, MA, United States, 2007; POLY-462.
8. Motornov, M.; Sheparovych, R.; Tokarev, I.; Roiter, Y.; Minko, S. ***Stimuli responsive hybrid polymer brushes with instant switching behavior***, 234th ACS National Meeting, August 19-23, 2007, Boston, MA, United States, **2007**; COLL-201.
9. Roiter, Y.; Minko, S. ***Adsorption of polyelectrolyte single molecules vs. surface charge: Intact AFM study under liquid***, 233rd ACS National Meeting, March 25-29, 2007, Chicago, IL, United States, **2007**; COLL-170.
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## H. Other Accomplishments

1. *Invited reviewer for Wiley Publishers (Journal of Applied Polymer Science, Biomaterials).*
2. *Most accessed articles*

- Article [Roiter, Y.; Ornatska, M.; Rammohan, A. R.; Balakrishnan, J.; Heine, D. R.; Minko, S. Interaction of Nanoparticles with Lipid Membrane. *Nano Letters* 2008, 8(3), 941-944.] was in the list of 20 most accessed articles in the journal: *Nano Letters*, -- during January-March, 2008.
- Article [Lupitskyy, R.; Roiter, Y.; Tsitsilianis, C.; Minko, S. From Smart Polymer Molecules to Responsive Nanostructured Surfaces. *Langmuir* **2005**, 21(19), 8591-8593.] was in the list of 20 most accessed articles in the journal: *Langmuir*, -- during July-September, 2005.

- Article [Minko, S.; Roiter, Y. AFM single molecule studies of adsorbed polyelectrolytes. *Current Opinion in Colloid & Interface Science* **2005**, 10(1-2), 9-15.] was in the list of 25 most accessed articles in the journal: *Current Opinion in Colloid & Interface Science*, -- during July-September and October-December, 2005.
3. AFM images or art designs prepared by Yuri Roiter were placed on the cover pages of journals: *Macromolecular Rapid Communications* **2005**, 26(17) (front cover page); *Journal of Polymer Science: Part A: Polymer Chemistry* **2007**, 45(16) (front cover page); *Advanced Materials* **2008**, 20(1) (inside front cover page); *Soft Matter* **2009**, 5(3) (background AFM image of the back cover page).

Yuri Roiter works continuously with undergraduate and graduate students at Clarkson University, Potsdam, NY, USA and worked with undergraduate and graduate students at Lviv Polytechnic National University, Lviv, Ukraine helping them in experimental work conduction, publication preparation and exchanging the experience and knowledge.

### **Computer and web skills**

Yuri easily works with or masters any computer software including equipment-oriented one. He works actively or worked with common-used (e.g. Microsoft Office, Corel Draw and Paint etc.), special (e.g. Borland C++ Builder, Autodesk 3ds Max, Adobe Flash etc.), and scientific software (e.g. Microcal Origin, Nanotec WSxM, HyperCube HyperChem, Waterloo Maple Inc. Maple, CambridgeSoft ChemOffice, ACD/Labs etc.). Yuri is skilled in touch typing at usual "qwerty" keyboards in three languages: English, Ukrainian and Russian (all about 70 WPM).

Yuri develops his own software (Borland C++ Builder), designs the web sites using a DHTML based on JavaScript and Adobe (Macromedia) Flash, and creates scientific computer graphics 3D movies (Autodesk 3ds Max). At the moment, 4 scientific software applications created by Yuri Roiter: "2D Single Molecules" (<http://people.clarkson.edu/~sminko/?nanostructured/responsive-smart-materials/2D-single-molecules-software.html>), created under the support of NSF-NATO grant); "AFM Subtractor" (positioning, scaling, skewing, and subtraction of AFM images, created under the support of Corning Inc.); "ContAngle" (measurement of contact angles with high processing sensitivity); and "GradiFill" (building of the images with specific gradient filling), -- are utilized actively in the NanoStructured Materials Group ("2D Single Molecules" is also provided as a freeware for all interested scientists). His scientific movies created in Autodesk 3ds Max are often used for the visualization of group scientific achievements at meetings and on the group web site.

Yuri is also a designer and webmaster of the web site of NanoStructured Materials Group:  
<http://people.clarkson.edu/~sminko>

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