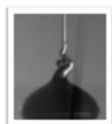


**CONFERENCE 2011**

***Dynamics of Complex Fluids***



**"Petru Poni" Institute of Macromolecular Chemistry  
of Romanian Academy  
Iași, ROMANIA  
May 5-7, 2011**



**Conference Chair Persons:** Acad. Bogdan C. Simionescu  
Prof. Maria Lungu  
Dr. Magdalena Aflori

**Organizing Committee:** Dr. Maria Bercea  
Dr. Simona Morariu  
Dr. Diana Ciolacu  
Dr. Raluca-Nicoleta Darie  
Dr. Loredana-Elena Niță  
Dr. Mariana Cristea  
Dr. Mihaela-Adriana Olaru  
Drd. Cristina-Eliza Brunchi

*Organized by*

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**European Social Fund – "CRISTOFOR I. SIMIONESCU" Postdoctoral Fellowship Programme (POSDRU/89/1.5/S/55216), Sectoral Operational Programme Human Resources Development 2007–2013**

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**"PETRU PONI" Institute of Macromolecular Chemistry**

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**„Cristofor I. Simionescu” Postdoctoral Fellowship Programme**

Project co-financed by **European Social Fund**, Sectoral Operational Programme Human Resources Development 2007 – 2013

**Priority Axis 1:** Educational and professional training to support economical growth and development of the knowledge-based society

**Major domain 1.5:** Doctoral and Postdoctoral Fellowship Programmes intended to support research

Contract: **POSDRU/89/1.5/S/55216**

Beneficiary: **“Petru Poni” Institute of Macromolecular Chemistry of Romanian Academy, Iasi**

**Consortium**

- ✓ "Gh. Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection; contact: Prof. Nicolae Hurduc
- ✓ “Nicolae Simionescu” Institute of Cell Biology and Pathology, Bucharest; contact: Acad. Maya Simionescu
- ✓ Fundamental and Advanced Technical Research Centre of the Romanian Academy, Timisoara; contact: Dr. Ladislau Vekas
- ✓ Institut Européen des Membranes (CNRS / École Nationale Supérieure de Chimie Montpellier Université Montpellier-II), Montpellier, France; contact: Dr. Mihail Barboiu
- ✓ Centre of Polymer and Carbon Materials, Zabrze, Poland; contact: Dr. Andrzej Dvorak

**Objectives and activities**

Research in biomaterials represents a national and European priority (hot area), whose approach requires an interdisciplinary cooperation between chemistry, biology, physics, (bio)materials science, medicine, informatics and an exceptional and expensive research infrastructure, as well as a critical mass of highly trained researchers. The main objective of the project is to train, for three years, 40 young researchers having obtained the PhD degree in the preparation, investigation (structure – properties – application), characterization and use of biomaterials. A second objective consists in increasing the attractiveness of research/innovation career for young PhD researchers through the facilities offered by the project (post-doctoral fellowships, free access to an outstanding research infrastructure, training courses, short trainings in specialized European laboratories, financial support for attending international symposia/congresses). Last but not least, the project will increase – through publications in highly specialized journals – the visibility of Romanian research on the international scientific scene.

The proposed objectives will be attended through a clear set of activities:

- ✓ Project management
- ✓ Preparation of postdoctoral program and of the scientific curricula
- ✓ Selection of postdoctoral fellows
- ✓ Scientific coordination
- ✓ Research, development and innovation activities stated in the postdoctoral projects
- ✓ Interdisciplinary specialization through national and international stages
- ✓ Participation to national and international scientific events
- ✓ Organization of the scientific/technical training sessions of the postdoctoral fellows
- ✓ Organization of (research) management and entrepreneurial culture courses for the researchers

Contact: Acad. Bogdan C. Simionescu, project coordinator ([bsimion@icmpp.ro](mailto:bsimion@icmpp.ro))



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41-A, Grigore Ghica Vodă Alley, 700487 Iași, ROMANIA  
Phone: +40 (0)232 217 454  
Fax: +40 (0)232 211 299  
<http://www.icmpp.ro/>

**Director:**

Acad. Prof. Bogdan C. Simionescu, E-mail: [bcsimion@icmpp.ro](mailto:bcsimion@icmpp.ro)

**Deputy directors:**

Dr. Anton Airinei, E-mail: [airineia@icmpp.ro](mailto:airineia@icmpp.ro)

Dr. Valeria Harabagiu, E-mail: [hvaleria@icmpp.ro](mailto:hvaleria@icmpp.ro)

The "Petru Poni" Institute of Macromolecular Chemistry, founded in 1949, is an institute of excellence of the Romanian Academy and concentrates on basic and applied research in polymer chemistry and physics.

The main **research interests** of the Institute are directed to:

- (i) New synthetic polymers (silicon-based monomers and polymers; functional polymers; heteroatomic monomers and polymers, thermally stable and flame resistant polymers; linear and non-linear polyelectrolytes; polyurethanes);
- (ii) Chemical modification of natural polymers (cellulose and lignin modification; high added value polymeric materials issued from biomass);
- (iii) Bioactive and biocompatible polymers;
- (iv) Solution and solid state properties of multicomponent systems;
- (v) Environment protection and energy conservation.

Periodically, the main topics are updated according to the emerging research trends connected to the "hot" scientific areas.

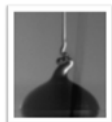
Last years, new research topics – inspired mainly from the third priority of 6th FP – were introduced in the research programmes of the Institute. They focused on

- (i) multicomponent and multifunctional polymeric systems based on natural and synthetic polymers, with targeted application as drug delivery systems, bioseparators and biosensors or bioactive compounds,
- (ii) thin films and nano-sized materials directed toward UV/laser ablation, optoelectronic and electro-optic devices, lithography or thermally resistant membranes,
- (iii) multiresponsive polymeric materials that are either obtained by or used for eco-friendly processes.

The Institute employs 284 people including about 110 researchers and 55 PhD students. The Institute portfolio contains more than 1500 scientific papers published the last ten years (most of them in international journals) and over 100 projects achieved in cooperation with partners from abroad.

**Main equipments:** Elemental analyser (C, H, N, S), NMR 400 MHz, FTIR, UV-VIS, fluorescence spectrometer, GPC, wide angle X-ray diffractometer, optical, electronic (TEM, SEM) and atomic force (AFM) microscopes, thermal and thermomechanical analysers (TGA, DSC, DMA), rheometers, automatic viscometers, nanosizer, mastersizer, LC-Q tof, dielectric spectrometer.





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700487 Iași, ROMANIA  
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E-mail: [reologie@icmpp.ro](mailto:reologie@icmpp.ro)  
<http://reologie.ro>

The conference *Dynamics of Complex Fluids* represents the 4<sup>th</sup> event within the series of meetings organized by Romanian Society of Rheology (SRR). The aim of this conference is to get-together specialists interested in Flow and Design of Complex Fluids from Romania and abroad. Also, the conference is an opportunity for Romanian post-doctoral students who are interested to develop scientific research in the area of complex fluids design and rheology.

Romanian Society of Rheology is a scientific society founded on 9<sup>th</sup> April 2009 by a Romanian group promoting excellence in the field of rheology. The Society of Rheology counts 65 members – chemists, engineers, physicists, mathematicians and biologists – interested in advancing and applying **rheology**, which is defined as the science of deformation and flow of matter. The goal of this society is to promote the research in the field of rheology by supplying information and offering opportunities for cooperation among scientists and engineers with any interest in rheology.

SRR is integrated in the European Society of Rheology (<http://www.rheology-esr.org>).



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313, Splaiul Independenței, Bucharest, Romania  
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<http://www.schr.org.ro>

Romanian Chemical Society (RCS) was established on January 27, 1919. The envisaged mission of the Society is to gather and concentrate the efforts of all those involved in one way or another in chemistry in order to organise and carry out national and international conferences, seminars and various debates on fundamental and applied chemistry and also to represent the interests of this outstanding professional “guild”.

Starting from 1998, The Romanian Chemical Society has been involved successfully in a series of International Conferences of South-Eastern European Chemical Societies (ICOSECS), which take place every two years in one of the above member countries. RCS has organised the third conference in 2002 in Bucharest, more than 650 participants attending it, being appreciated as a leader in imposing superior standards in organising these series of conferences. Later on, RCS has organised and sponsored the participation of Romanian scientists, members of the Society to ICOSECS-4 (Belgrad-2004), ICOSECS-5 (Ohrid-2006), ICOSECS-6 (Sofia-2008).

In 1996, the RCS was accepted as a full rights member by the Federation of the European Chemical Societies (FECS) and since 2001 has participated regularly to its activity.



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## CONFERENCE SCHEDULE

### Thursday, 5 May 2011

- 8.00 – 9.00 Registration  
9.00 – 9.30 Opening Ceremony  
9.30 – 10.15 Plenary Conference (CP 1)  
10.15 – 11.00 Plenary Conference (CP 2)  
11.00 – 11.30 Coffee Break  
11.30 – 13.00 Visit of “Petru Poni” Institute of Macromolecular Chemistry of  
Romanian Academy  
  
13.00 – 14.00 Lunch  
  
14.00 – 14.45 Plenary Conference (CP 3)  
14.45 – 15.30 Plenary Conference (CP 4)  
15.30 – 16.00 Coffee Break  
16.00 – 17.20 Oral Presentations (OP 1 – OP 4)  
17.20 – 18.50 Posters Session  
  
19.00 Conference Dinner

### Friday, 6 May 2011

- 9.00 – 9.45 Plenary Conference (CP 5)  
9.45 – 10.30 Plenary Conference (CP 6)  
10.30 – 11.00 Coffee Break  
11.00 – 13.00 Oral Presentations (OP 5 – OP 10)  
  
13.00 – 14.00 Lunch  
  
14.00 – 18.00 Round Table

### Saturday, 7 May 2011

- 9.00 – 10.00 Closing Remarks  
10.00 – 18.00 Round Table

The profile of the Conference includes:

- Plenary Conferences (45 minutes)
- Lectures (20 minutes)
- Poster Communications

Conference Language is **English**.



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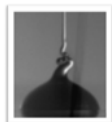
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**Thursday, 5 May 2011**

9.00 – 9.30 Opening Ceremony

**Prof. Maria Lungu** - President of the Romanian Society of Rheology

**Dr. Magdalena Aflori** - Dissemination Responsible of „Cristofor I. Simionescu”  
Postdoctoral Fellowship Programme

9.30 – 11.00 Chairs: **Dr. Tatiana Budtova, Prof. Corneliu Balan**

**CP 1.** *Intrinsic viscosities of polyelectrolytes in the absence and in the presence of salt*  
**Bernhard A. Wolf**

Institut für Physikalische Chemie der Johannes Gutenberg-Universität Mainz and  
Materialwissenschaftliches Forschungszentrum der Universität Mainz, Germany

**CP 2.** *Elasticity of hydroxypropylcellulose solutions*

**Patrick Navard**<sup>1</sup>, Maria Bercea<sup>2</sup>

<sup>1</sup> Mines ParisTech, Centre de Mise en Forme des Matériaux UMR CNRS/Ecole des Mines de  
Paris, Sophia-Antipolis, France

<sup>2</sup> "Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania

11.00 – 11.30 Coffee Break

11.30 – 13.00 Visit of “Petru Poni” Institute of Macromolecular Chemistry

13.00 – 14.00 Lunch

14.00 – 15.30 Chairs: **Prof. Bernhard A. Wolf, Dr. Ladislau Vekas**

**CP 3.** *New trends in magnetic field-responsive complex fluids*

**Alain Ponton**

Laboratoire Matière et Systèmes Complexes (MSC), UMR 7057 CNRS et Université Paris  
Diderot-Paris7, France

**CP 4.** *Role of water in cellulose-ionic liquid solutions: a rheological study*

Kim Anh Le, Romain Sescousse, **Tatiana Budtova**

Mines ParisTech, Centre de Mise en Forme des Matériaux UMR CNRS/Ecole des Mines de  
Paris, Sophia-Antipolis, France

15.30 – 16.00 Coffee Break



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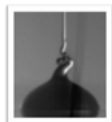


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16.00 – 17.20 Chairs: **Dr. Patrick Navard, Prof. Diana Broboana**

**OP 1.** *Magnetizable complex fluids: Design of magnetic and magnetorheological properties through composition*

Daniela Susan-Resiga<sup>1,3</sup>, Oana Marinica<sup>2</sup>, **Ladislau Vékás**<sup>3</sup>

<sup>1</sup>Faculty of Physics, West University of Timisoara, Timisoara, Romania

<sup>2</sup>National Center for Engineering of Systems with Complex Fluids, Politehnica University of Timisoara, Timisoara, Romania

<sup>3</sup>Center for Fundamental and Advanced Technical Research, Romanian Academy-Timisoara Branch, Timisoara, Romania

**OP 2.** *Non-linear behaviour of complex fluids studied by Large Amplitude Oscillatory Shear (LAOS)*

**Loredana Mirela Pop**, Heiko Stettin, Jörg Läuger

Anton Paar Germany GmbH, Ostfildern / Germany

**OP 3.** *Complex fluids with yield surface*

**Sanda Cleja Tigoiu**, Victor Tigoiu

Faculty of Mathematics and Computer Science, University of Bucharest, Romania

**OP 4.** *Viscometric and rheological behavior of progressively quaternized poly(dimethylaminoethyl methacrylate) as a function of charge density*

**Ionel Adrian Dinu**<sup>1</sup>, Maricel Danu<sup>1</sup>, Constanța Ibănescu<sup>1,2</sup>, Ecaterina Stela Drăgan<sup>1</sup>

<sup>1</sup>“Petru Poni” Institute of Macromolecular Chemistry, Iasi, Romania

<sup>2</sup>Faculty of Chemical Engineering and Environmental Protection, “Gh. Asachi” Technical University, Iasi, Romania

17.20 – 18.50 Posters Session

19.00 Conference Dinner

**Friday, 6 May 2011**

9.00 – 10.30 Chairs: **Prof. Alain Ponton, Dr. Ecaterina Stela Dragan**

**CP 5.** *New rheology of complex fluids characterized by non-monotonous flow curve*

Diana Broboana, Daniela Coblas, **Corneliu Balan**

Polytechnica University, REOROM Laboratory - BIOINGTEH, Bucharest, Romania

**CP 6.** *Further consideration of dynamic mechanical analysis applied to soybean oil-based polyurethane*

**Mariana Cristea**<sup>1</sup>, Daniela Ionita<sup>1</sup>, Stefan Oprea<sup>1</sup>, Bogdan C. Simionescu<sup>1,2</sup>

<sup>1</sup>“Petru Poni” Institute of Macromolecular Chemistry, Iasi, Romania

<sup>2</sup>“Gh. Asachi” Technical University, Department of Natural and Synthetic Polymers, Iasi, Romania

10.30 – 11.00 Coffee Break



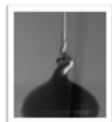
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11.00 – 13.00 Chairs: **Prof. Maria Lungu, Dr. Loredana Pop**

**OP 5.** *The influence of the surfactant layer thickness on the rheological properties of magnetic nanofluids*

**V. Socoliuc**<sup>1,2</sup>, A. Taculescu<sup>2,3</sup>, D. Susan-Resiga<sup>2,4</sup>, O. Marinica<sup>5</sup>, C. Daia<sup>2</sup>, L. Vekas<sup>2</sup>

<sup>1</sup>“Petru Poni” Institute of Macromolecular Chemistry, Iasi, Romania,

<sup>2</sup>Center for Fundamental and Advanced Technical Research, Romanian Academy-Timisoara Branch, Timisoara, Romania

<sup>3</sup>Faculty of Industrial Chemistry and Environmental Engineering, „Politehnica” University of Timisoara, Romania

<sup>4</sup>Faculty of Physics, West University of Timisoara, Romania

<sup>5</sup>National Center for Engineering of Systems with Complex Fluids, „Politehnica” University of Timisoara, Romania

**OP 6.** *Rheological properties of hydrogels based on cellulose allomorphs*

**Diana Ciolacu**<sup>1</sup>, Stelian Sergiu Maier<sup>2</sup>

<sup>1</sup>“Petru Poni” Institute of Macromolecular Chemistry, Iasi, Romania

<sup>2</sup>“Gh. Asachi” Technical University, Iasi, Romania

**OP 7.** *Hydrodynamic properties of some cationic amphiphilic polysaccharides in dilute and semi-dilute aqueous solutions*

**Magdalena Cristina Stanciu**, Marieta Nichifor, Luminita Ghimici

“Petru Poni” Institute of Macromolecular Chemistry, Iasi, Romania

**OP 8.** *Novel multi-stimuli responsive sodium alginate-grafted-poly(N-isopropylacrylamide) copolymers II. Dilute solution properties*

Cornelia Vasile, **Loredana Elena Nita**

“Petru Poni” Institute of Macromolecular Chemistry, Iasi, Romania

**OP 9.** *Stretching flow for a subclass of Oldroyd's type fluids*

Corina Cipu<sup>1</sup>, **Carmen Pricina**<sup>2</sup>, Victor Tigoiu<sup>3</sup>

<sup>1</sup>Polytechnic University of Bucharest, Bucharest, Romania

<sup>2</sup>Romanian American University, Bucharest, Romania

<sup>3</sup>Faculty of Mathematics and Computer Science, University of Bucharest, Romania

**OP 10.** *Simulation of electrokinetic phenomena in nano-channel with complex fluid*

**Mehdi Mostofi**<sup>1</sup>, Davood D. Ganji<sup>2</sup>, Mofid Gorji-Bandpy<sup>3</sup>

<sup>1</sup>Islamic Azad University, East Tehran Branch, Tehran, Iran

<sup>2</sup>Babol Noshiravani University of Technology, Babol, Iran

<sup>3</sup>Babol Noshiravani University of Technology, Babol, Iran

13.00 – 14.00 Lunch

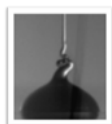
14.00 – 18.00 Round Table

**POSTERS SESSION**

- PP 1. *The rheological behavior of freeze-thawed hydrogels based on polyacrylamide and dextran sulfate*  
**Maria Valentina Dinu**<sup>1</sup>, Maria Marinela Perju<sup>1</sup>, Ecaterina Stela Drăgan<sup>1</sup>, Mandy Mende<sup>2</sup>, Simona Schwarz<sup>2</sup>  
<sup>1</sup>"Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania  
<sup>2</sup>Leibniz Institute of Polymer Research Dresden e. V., Dresden, Germany
- PP 2. *Viscoelastic behavior of the aged and non-aged LDPE/feather composites*  
**Raluca Nicoleta Darie**, Iuliana Spiridon  
"Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania
- PP 3. *Polyethylene/ softwood kraft pulp fibres composites*  
**Raluca Nicoleta Darie**, Anamaria Sdrobiș, Marian Totolin, Georgeta Cazacu, Cornelia Vasile  
"Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania
- PP 4. *Synthesis and characterization of new hydrogels based on green polymers*  
**Diana Ciolacu**, Georgeta Cazacu, Maria Cazacu  
"Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania
- PP 5. *Plasma treatments influence on polyester films surfaces for collagen immobilization*  
M. Drobotă<sup>1</sup>, I. Stoica<sup>1</sup>, D. Dimitriu<sup>2</sup>, **M. Aflori**<sup>1</sup>  
<sup>1</sup>"Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania  
<sup>2</sup>Faculty of Physics, "Al. I. Cuza" University of Iasi, Romania
- PP 6. *The magnetic field effect upon the preparation of an interpenetrated structure based on poly(aspartic acid), poly(ethylene glycol) and collagen*  
**Loredana Elena Nita**, Aurica P. Chiriac, Maria Bercea, Iordana Neamtu  
„Petru Poni” Institute of Macromolecular Chemistry, Iasi Romania
- PP 7. *Possibilities for the preparation of a network based on 2 - hydroxyethyl methacrylate and a comonomer with spiroacetal moiety*  
Aurica P.Chiriac, **Loredana Elena Nita**, Manuela T. Nistor  
"Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania
- PP 8. *Comparative analysis of relaxation phenomena of PMMA using tension and bending mode*  
**Daniela Ionita**, Mihaela Sillion, Mariana Cristea, Bogdan C. Simionescu  
"Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania
- PP 9. *Gelation of laponite dispersions in presence of poly(ethylene oxide)*  
**Simona Morariu**  
"Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania
- PP 10. *Rheology of some hydrolysed starch-g-PAN copolymers as a function of the synthesis conditions*  
**Diana Felicia Apopei**, Marcela Mihai, Ecaterina Stela Dragan  
"Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania
- PP 11. *The rheological behavior of some thermoreversible hydrogels based on polyurethane*  
**Luiza Madalina Gradinaru**<sup>1</sup>, Constantin Ciobanu<sup>1</sup>, Stelian Vlad<sup>1</sup>, Maria Bercea<sup>1</sup>, Marcel Popa<sup>2</sup>  
<sup>1</sup>"Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania  
<sup>2</sup>"Gh. Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection, Iasi, Romania



- PP 12. *Polyurethanes for sustained release of drug*  
Mihaela Mandru<sup>1</sup>, **Luiza Gradinaru**<sup>2</sup>, Maurusa-Elena Ignat<sup>2</sup>, Marcel Popa<sup>1</sup>, Constantin Ciobanu<sup>2</sup>  
<sup>1</sup>"Gh. Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection, Iasi, Romania,  
<sup>2</sup>"Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania
- PP 13. *Rheological behaviour of some adhesive dispersion based on modified polychloropren*  
**Laurenția Alexandrescu**<sup>1</sup>, Mihut Marian<sup>2</sup>, Minodora Leca<sup>2</sup>  
<sup>1</sup>Research Development National Institute for Textile and Leather –Division Leather and Footwear Research Institute, Bucharest, Romania  
<sup>2</sup>University of Bucharest, Faculty of Chemistry, Bucharest, Romania
- PP 14. *Novel procedure to measure viscosity and surface tension of pure viscous and weakly elastic viscous fluids*  
**Raluca Isvanca**, Cristina Zota, Catalin Mihai Balan, Corneliu Balan  
Polytechnica University, REOROM Laboratory - BIOINGTEH, Bucharest, Romania
- PP 15. *Interrelation between thermodynamic and rheological parameters of polyelectrolytes/mixed solvents systems*  
**Anca Filimon**, Ecaterina Avram, Silvia Ioan  
"Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania
- PP 16. *Numerical investigation into heat transfer enhancement of non-Newtonian nanofluid in a microchannel considering variable thermal properties*  
**Ali Esmailnejad**, Habib Aminfar  
Department of Mechanical engineering, University of Tabriz, Tabriz, Iran
- PP 17. *Rheological behavior of refined rapeseed oil*  
**Ioana Stanciu**  
University of Bucharest, Bucharest, Romania
- PP 18. *Hydrogen bonding contribution on the transition from the unentangled-entangled regime in semidilute solution of cellulose acetate phthalate*  
**Adina-Maria Dobos**, Mihaela Onofrei, Nicolae Olaru, Liliana Olaru, Silvia Ioan  
"Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania
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<sup>1</sup>Department of Colloids, “Ilie Murgulescu” Institute of Physical Chemistry, Bucharest, Romania  
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<sup>1</sup>Department of Colloids, “Ilie Murgulescu” Institute of Physical Chemistry of the Romanian Academy, Bucharest, Romania  
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Department of Physics, Bareilly College, Bareilly, India