

PROGRAM

MONDAY, July 6

9:00 OPENING

F. Rypáček

Director of IMC and the 73rd PMM chairman

H. Ringsdorf

73rd PMM Honorary chairman

Chairpersons: **J. Kopeček, H. Ringsdorf**

9:30 IL 1 **R. Duncan (UK)**

Bioresponsive polymer therapeutics for treatment of cancer and for tissue repair

10:00 IL 2 **D. Cohn (Israel)**

Engineering nano and macro-sized “smart” biomedical structures

10:30 - 11:00 Coffee break

11:00 IL 3 **K. Kataoka (Japan)**

Supra-macromolecular nanodevices for smart molecular therapy

11:30 IL 4 **E. Wagner (Germany)**

Dynamic polymers for therapeutic DNA and RNA delivery

12:00 IL 5 **G. Storm (The Netherlands)**

Targeted nanomedicines and EC-sponsoring in FP6

12:30 Discussion

Leaders: **J. Kopeček, H. Ringsdorf**

13:00 – 14:15 Lunch.

Chairpersons: **R. Borsali, P. Štěpánek**

14:15 IL 6 **C.K. Ober (USA)**

Polymer brushes as responsive materials for the biology-materials interface

14:45 IL 7 **V. Percec (USA)**

Bioinspired synthesis of complex functional systems

15:15 - 15:40 Coffee break

15:40 IL 8 **A.J. Ryan (UK)**

Making polymers swim

16:10 SL 1 **M. Silverstein (Israel)**

Porous biodegradable polymers and hydrogels through emulsion templating

16:30 SL 2 **M. Özmen (Turkey)**

Preparation of macroporous poly(acrylamide) hydrogels in DMSO/water mixture

16:50 Discussion

Leaders: **R. Borsali, P. Štěpánek**

17:30 – 19:00

POSTERS P 1 – P 58

TUESDAY, July 7

Chairpersons: **G. Nelles, V. Cimrová**

- 9:00 IL 9 G. Wegner (Germany)**
Ion-transport in polymers: How to improve the performance of batteries and fuel-cells?
- 9:30 IL 10 O. Azzaroni (Argentina)**
Polymer brushes in confined environments: New challenges and opportunities for designing advanced functional materials
- 10:00 IL 11 H. Böhm (Germany)**
Molecular engineering of cellular environments: Cell adhesion to nanodigital surfaces

10:30 - 11:00 *Coffee break*

- 11:00 IL 12 G. Nelles (Germany)**
Functional materials for future devices
- 11:30 IL 13 Z. Bo (China)**
Towards stable blue light-emitting materials
- 12:00 Discussion**
Leaders: **G. Wegner, O. Azzaroni, V. Cimrová**

12:30 - 14:00 *Lunch*

Chairpersons: **A. Ryan, K. Dušek**

- 14:00 IL 14 K. Mortensen (Denmark)**
The nano-scale structure of polymer amphiphilic systems: Tailored new phases and applications as smart materials
- 14:30 IL 15 R. Borsali (France)**
Hybrid block glycopolymer self-assemblies
- 15:00 IL 16 K. Procházka (Czech Republic)**
Block copolymer micelles with complexed metallacarboranes in cores

15:30 - 16:00 *Coffee break*

- 16:00 IL 17 T. Etrych (Czech Republic)**
Polymer therapeutic architecture: A major factor in achieving highly efficient polymer medicines
- 16:30 IL 18 A.S. Hoffman (USA)**
How the Institute of Macromolecular Chemistry inspired and influenced my research over the past 40 years
- 17:00 Discussion**
Leaders: **A.S. Hoffman, A.J. Ryan, K. Dušek**

17:30 - 19:00 **POSTERS P59 - P 104**

WEDNESDAY, July 8

Chairpersons: **C.K. Ober, P. Kratochvíl**

- 9:00 IL 19 S.P. Brown (UK)**
New solid-state NMR methodology for probing structure-determining hydrogen-bonding interactions
- 9:30 IL 20 J. Brus (Czech Republic)**
Nanostructured polymer systems as seen by solid-state NMR spectroscopy
- 10:00 IL 21 H.W. Spiess (Germany)**
Self-assembly and dynamics of synthetic polymers and polypeptides from NMR spectroscopy

10:30 - 11:00 *Coffee break*

- 11:00 SL 3 M. Žigon (Slovenia)**
Transparent UV-absorbing PMMA/ZnO nanocomposites
- 11:20 SL 4 M. Ton That (Canada)**
Biobased polyurethane nanocomposite foam
- 11:40 SL 5 P. Marcasuzaa (France)**
Irradiated microwave synthesis: A new way to obtain conducting copolymers
- 12:00 Discussion**
Leaders: **C.K. Ober, P. Kratochvíl**

12:30 – 14:00 *Lunch*

Chairpersons: **M. Žigon, M. Dušková**

- 14:00 SL 6 T. Wada (Japan)**
Studies on the effects of arginine residues introduced to peptide ribonucleic acids (PRNA) on the complex stability with RNA and the cell membrane permeability
- 14:20 SL 7 A. Bertin (Germany)**
Thiol-ene chemistry on glass slides: Easy way to carbohydrate microarrays, protein recognition, and tunable surfaces
- 14:40 SL 8 M. Bílek (Australia)**
Properties of polymeric surfaces suitable for linker free covalent binding of functional biomolecules: the role of free radicals

15:30 Prague tour & conference dinner for all participants

Tour buses leave from IMC, after the tour the participants will be brought directly to the Villa Richter Restaurant where the PMM dinner takes place

THURSDAY, July 9

Chairpersons: **Z. Bo, F. Rypáček**

- 9:00 IL 22 R.H. Friend (UK)**
Polymer semiconductor solar cells – design of structures for charge photogeneration, separation and collection
- 9:30 IL 23 S. Slomkowski (Poland)**
Polymer nano- and microparticle based systems for medical diagnostics
- 10:00 IL 24 B. Voit (Germany)**
Thin functional polymer films for micro- and nanopatterning
- 10:30 - 11:00** *Coffee break*
- 11:00 IL 25 Z. Pientka (Czech Republic)**
Hydrogen economy and polymeric membranes
- 11:30 IL 26 B. Ratner (USA)**
Biostable and biodegradable methacrylate hydrogels for healing and tissue regeneration
- 12:00 SL 9 W. Burchard (Germany)**
Supra-molecular structure formation: What is the physical basis?
- 12:30 – 14:00** *Lunch*
- Chairpersons: **R. Duncan, K. Ulbrich**
- 14:00 IL 27 C. Werner (Germany)**
Biohybrid hydrogels for regenerative therapies
- 14:30 IL 28 L. Seymour (UK)**
Polymers for improved delivery of cancer-killing viruses
- 15:00 IL 29 S. Zhang (USA)**
Self-assembling peptide materials for diverse applications
- 15:30 Discussion**
Leaders: **R. Duncan, K. Ulbrich**
- 16:00 Farewell toast at the IMC entrance hall**

List of posters

MONDAY POSTER SESSION

- P1** M. Pastorczak, M. Kozanecki, S. Kadlubowski, J.M. Rosiak, J. Ulanski
Intermolecular interactions and structure of water in poly(vinyl methyl ether) hydrogels
- P2** T. Riedel, E. Brynda, J. Chlupáč, E. Filová, L. Bačáková, J.E. Dyr
Artificial fibrin gels for blood vessel engineering
- P3** A. Sionkowska, J. Kozłowska, A. Płancka, J. Skopińska-Wisniewska
Comparison of the properties of novel materials based on collagen, chitosan and hydroxyapatite
- P4** Y. Morita, S. Yamamoto, H. Yabu, E. Ito, M. Tanaka, K. Ijio, O. Honmou, M. Shimomura
Honeycomb-patterned topography regulates cell shape and improves proliferative ability of multipotent adult stem cells
- P5** M. Annaka
Electrostatic self-assembly of charged block copolymers and low molecular-weight molecules
- P6** R. Hobzová, B. Dvořánková, T. Fenclová, J. Michálek, K. Smetana Jr.
New hydrogel support for cell cultures for medical and research purposes
- P7** A. Anžlovar, Z. Crnjak Oreš, M. Žigon
Poly(methyl methacrylate)/ZnO nanocomposites based on organophilic ZnO nanorods
- P8** M. Sedláček, Č. Koňák, J. Dybal
Self-assembly of thermosensitive poly(ethacrylic acid) homopolymers into stable nanoparticles via stabilization by hydrogen bonds
- P9** S. Kazim, J. Pfleger
Photoelectrical properties of MEH-PPV and Nile blue dye blends and bilayer structures
- P10** S. Kazim, S. Ahmad, J. Pfleger, Y.M. Joshi
Polyaniline- Na^+ -MMT clay nanocomposites: Synthesis and characterization
- P11** E.N. Konyushenko, J. Stejskal, M. Trchová
Preparation of polyaniline in non-aqueous solvents
- P12** A. Jäger, D. Gromadzki, P. Štěpánek
New pH-tunable block copolymer nanoparticles via controlled radical polymerization and azide-nitrile click chemistry
- P13** J. Holoubek, J. Baldrian, J. Hromádková, M. Steinhart
Self-assembled nanostructures in copolymer blends: SAXS, SANS and TEM Study
- P14** J. Hašek, T. Skálová, J. Dušková, J. Dohnálek, P. Kolenko, T. Koval, A. Štěpánková
Hydrophilic polymers as versatile tool for preparation of supramolecular systems

- P15** S. Filippov, Č. Koňák, J. Kopeček, P. Kopečková, L. Starovoytova, M. Špírková, P. Štěpánek
New polyplexes on the basis of cholesterol modified polycations
- P16** P. Bober, J. Hromádková, M. Trchová, J. Stejskal, J. Prokeš
The oxidation of aniline with silver nitrate in the solutions of acetic acid to polyaniline–silver composites
- P17** N.V. Blinova, S. Reynaud, M. Trchová, J. Stejskal
Synthesis of gradient polyaniline-polystyrene particles
- P18** S. Baytekin, Z. Küçükyavuz
Synthesis and characterization of polypyrrole nanoparticles and their nanocomposites with polypropylene
- P19** L. Cucco Porto, I. Pignot-Paintrand, V. Soldi, R. Borsali
Nanoparticles and thin films made from block copolymers and their decoration with polysaccharides
- P20** J. Toušek, J. Toušková, I. Křivka, P. Pavlačková, D. Výprachtický, V. Cimrová
Exciton diffusion length in fluorene - thiophene based copolymers determined by the surface photovoltage method
- P21** R.K. Donato, H.S. Schrekker
Silica-ionic liquid hybrid for the preparation of polyethylene composites
- P22** R.K. Donato, H.S. Schrekker, J. Pleštil, M. Šlouf, L. Matějka
The influence of ionic liquids on the *in situ* formation of epoxy – silica nanocomposites
- P23** V. Cimrová, I. Kmínek, D. Výprachtický, P. Pavlačková
Novel soluble fluorene – thienothiadiazole and fluorene – carbazole copolymers for optoelectronics
- P24** I. Horská, V. Zajícová, P. Exnar
Layers of inorganic-organic materials prepared by sol-gel method
- P25** W. Chen, B.-L. Hsu, C.-H. Wang, Y.-M. Weng
Structural characterization of edible zein film by FT-Raman spectroscopy
- P26** J. Kalfus, J. Jančář, S.S. Sternstein, J. Kučera
On the effect of randomness of particle spacing on the viscoelasticity of polymer nanocomposites
- P27** L. Lazzeri, M.G. Cascone
Effect of several parameters on dimensional and release properties of alginate microparticles
- P28** M. Bouhadid, J. Desbrières, N. Redon, C. Pillon, S. Reynaud
One single composite for chemical sensor or heating purposes
- P29** D. Pahovnik, E. Žagar, J. Vohlídal, M. Žigon
Morphology of polyaniline nanoparticles synthesized by using an ionic liquid as a soft template

- P30** J. Pánek, Č. Koňák, P. Štěpánek
Physicochemical characterisation of polymeric nanoparticles stabilised by surfactants
- P31** K. Podhájek, J. Pflieger, V. Slunečková, J. Hromádková, D. Bondarev, J. Vohlídal
Self-assembled alternating multilayers of conjugated polyelectrolytes and gold nanoparticles
- P32** Š. Popelka, O. Pop-Georgievski, F. Rypáček
High-density poly(ethylene oxide) surface coatings: The effect of grafting conditions on the structure of grafted poly(ethylene oxide) layer
- P33** V. Proks, J. Jaroš, O. Pop-Georgievski, Š. Popelka, A. Hampl, P. Dvořák, F. Rypáček
“Click & Seed” approach to the biomimetic modification of polymers
- P34** D. Rais, G. Wang, S. Nešpůrek, J. Hain, Y. Lu, A. Pich, H.-J.P. Adler, A. Hamáček, J. Řeboun
Synthesis of conductive polymeric composites of sub-micrometer sized particles and electrical characterization of thin films prepared therefrom
- P35** S. Pochekaïlov, J. Nožár, S. Nešpůrek, J. Rakušan, M. Karásková
Soluble phthalocyanines as nitrogen dioxide sensors
- P36** O. Trhlíková, D. Rédrová, V. Hanková, J. Zedník, J. Sedláček, J. Vohlídal
SEC/MALS and ¹H NMR study of poly[(4-n-pentylphenyl)acetylene]: Solution properties and molecular-weight and configurational stability
- P37** L. Starovoytova
Effect of additives on stability of polymer globules
- P38** M. Varga, J. Prokeš, J. Nedbal, P. Bober, J. Stejskal
Electric and dielectric properties of polyaniline/montmorillonite composites
- P39** L. Rajabi, H. Gharibpour, M.R. Panahi, M. Khazaie
Hardness and tensile properties of epoxy-based nano particle-reinforced composites
- P40** L. Rajabi, Z. Mohammadi, M. Panahi
Thermal stability and dynamic mechanical properties of epoxy/nano and micro-TiO₂ composites: Effect of mixing method
- P41** A. Kochalska, J. Nožár, S. Nešpůrek, J. Pospíšil
Photostabilization and photodegradation of poly[methyl(phenyl)silylene]
- P42** R. Hobzová, J. Hradil
Surface properties of polymers
- P43** M. Špírková, P. Duchek, A. Strachota, J. Kotek, J. Baldrian, M. Šlouf
The influence of organically modified layered silicates on properties of organic-inorganic nanocomposite coatings
- P44** J. Svobodová, F. Rypáček, J. Brus
The chemical modification of poly(α -amino acids)s fibres for tissue engineering applications

- P45** E. Třesohlavá, L. Machová, V. Proks, P. Knotek, Y. Yang, F. Rypáček
Biomimetic modification of polylactide surfaces through deposition of functional amphiphilic block copolymers
- P46** D. Ishii, Y. Hirai, H. Yabu, M. Shimomura
Biomimetic surface based on metal-polymer hybrids prepared from self-organized honeycomb films
- P47** A.V. Sybachin, E. Kesselman, J. Schmidt, Y. Talmon, A.A. Yaroslavov
Complexes of cationic polymers with anionic liposomes: Stability, structure and properties
- P48** K. Dušek, M. Dušková-Smrčková
Strategies in predicting polymer network formation and structure of complex systems
- P49** C. Rodríguez Emmenegger, E. Hasan, E. Brynda, M. Houska, Z. Sedláková, A. Bologna Alles, W.T.S. Huck
Novel architecture design of block copolymers of ethylene glycol methyl ether methacrylate and carboxybetaine acrylamide
- P50** C. Rodríguez Emmenegger, E. Hasan, E. Brynda, M. Houska, A. Bologna Alles
Atom transfer radical polymerization of mono-methoxy capped oligo(ethylene glycol methacrylate) in phosphate buffered saline
- P51** T. Sedláčik, F. Rypáček
Cryogels based on synthetic poly(α -amino acid)s
- P52** P. Weda, B. Trzebicka, A. Utrata-Wesolek, Ch.B. Tsvetanov, A. Dworak
Nanocontainers made of polymeric mesoglobules
- P53** J. Pilař, J. Kříž, A. Strachota, P. Kadlec, J. Michálek
Effect of structure of HEMA-DEGMA hydrogel matrix on diffusion coefficients of PEG tracers
- P54** Q. Yang, C. Kaul, M. Ulbricht
Protein resistance of glycocalyx-mimetic glycopolymer layer: Study by SPR
- P55** N. Vranješ, V. Rek, I. Fiamengo
Effect of EPDM as compatibilizer on mechanical properties and morphology of PP/LDPE blends
- P56** Y. Hirai, H. Yabu, Y. Matsuo, K. Ijiri, M. Shimomura
Superhydrophobic and anti-reflective nano-structures prepared by self-organization and dry etching process
- P57** M. Janata, P. Vlček, J. Spěváček, A. Sikora, P. Látalová
New polyisobutylene based hydrogels prepared by two-step polymer procedure
- P58** B.S. Gyarmati, Á. Némethy, T. Gyenes, B. Pukánszky, A. Szilágyi
Cross-linked poly(aspartic acid) based hydrogels

TUESDAY POSTER SESSION

- P59** H. Studenová, M. Dušková-Smrčková
Biodegradable hydrogels for soft tissue engineering: microstructure control through microsyringes
- P60** F. Topuz, O. Okay
Formation and properties of responsive DNA hydrogels
- P61** F. Topuz, O. Okay
Tough hydrogel beads with superfast responsivity
- P62** B.S. Gyarmati, Á. Némethy, T. Gyenes, B. Pukánszky, A. Szilágyi
Modeling of equilibrium swelling behaviour of polyelectrolyte gels
- P63** T. Gotoh, K. Tanaka, T. Arase, S. Sakohara
A novel gel adsorbent for phosphoric acid by temperature swing adsorption/desorption
- P64** K. Dworecki
Experimental investigation of the anomalous diffusion in gel-membrane system
- P65** A.I. Popadyuk, N.Yu. Solomko, O.G. Budishevska, S.A. Voronov
Hydrogels based on chitosan-polyvinylpyrrolidone copolymers for drug delivery
- P66** A. Purkrt, A. Poruba, M. Vaněček, V. Cimrová
Comparative annealing study of photoelectric properties of bulk heterojunction organic solar cells based on P3HT:ThCBM[60] and P3HT:ThCBM[70] blends
- P67** A. Utrata-Wesołek, I. Żymełka, B. Trzebicka, A. Dworak
Polyether hydrogels from photo- and chemically crosslinkable derivatives of polyglycidol
- P68** K. Depa, A. Strachota
Fast thermoresponsive poly(*N*-isopropylacrylamide) hydrogels with improved mechanical properties
- P69** E. Minko, M. Hauf, P. Sysel, J. Brus, L. Kobera
Synthesis and properties of hyperbranched polyimides combined with silica
- P70** M. Netopilík, M. Janata, P. Kratochvíl
Problems with tailoring graft polymers
- P71** L. Poláková, Z. Sedláková, P. Látalová, H. Valentová
Synthesis and liquid-crystalline behavior of telechelic poly(butadiene)diols with azobenzene-based side chains
- P72** Z. Sedláková, J. Pleštil, J. Baldrian, M. Šlouf, P. Holub
Nanostructured hybrid materials prepared via in-situ emulsion polymerization
- P73** A. Štuncová, P. Schmidt, J. Dybal
Coordination properties of water and polymer-water interactions
- P74** I. Šeděnková, M. Trchová, J. Stejskal, J. Prokeš
Solid-state oxidation of polyaniline base with silver nitrate

- P75** G. Tishchenko, J. Peter, E. Pavlová, J. Brus, M. Netopilík, M. Pekárek, Z. Sedláková, E.Yu. Rosova, M. Smírnov, G.K. Elyashevich
Effect of applied electric field on structure and permeability of chitin nanofiber-reinforced chitosan membranes
- P76** Z. Rozlívková, M. Trchová, I. Šeděnková, M. Špírková, J. Stejskal
Polyaniline films prepared *in-situ* during the standard and dispersion polymerizations of aniline
- P77** D. Výprachtický, V. Cimrová, I. Kmínek, P. Pavlačková
Syntheses of conjugated polymers for photonics
- P78** H. Valentová, J. Nedbal, J. Prokeš, J. Stejskal
Mechanical, dielectric and electrical properties of polyaniline
- P79** J. Jůza
Liquid polybutadienes - influence of modifications on some physical properties.
- P80** J. Prokop, J. Mikešová, Z. Kruliš, H. Beneš
Glycolysis of polyurethane foams under microwave heating conditions
- P81** S. Rungridnimitchai, U. Supjaroenkul
Biosorbents from rice straw prepared by microwave heating
- P82** R. Sivkova, J. Zedník, J. Sedláček, J. Vohlídal
Application of "click" chemistry for post-polymerization modification of disubstituted polyacetylenes
- P83** M. Liang, Y.-J. Jhuang, C.-F. Zhang, W.-J. Tsai, H.-C. Feng
Synthesis and characterization of poly(phenylene oxide) graft copolymers by atom transfer radical polymerizations
- P84** M. Květoň, V. Lédl, A. Havránek, P. Fiala
Photopolymer for optical holography and holographic interferometry
- P85** S.A. Udra, D.V. Petkiva, I.V. Eremeev, V.I. Gerasimov
Gels and xerogels of p(VDF-TFE) copolymer with propylene carbonate
- P86** E. Karpushkin, M. Dušková-Smrčková, M. Lapčíková, K. Dušek
Rheological behaviour of swollen hydrogels
- P87** A.K. Berkovich, E.V. Yaroshenko, V.S. Dudko, E.A. Litmanovich
Overlap in poly(acrylic acid) aqueous solutions in acidic medium
- P88** Ts. Filipova, D.A. Boyles, T. Ranganathan, E.B. Coughlin, T. Emrick
Fire-resistant aromatic poly(aryloxysiloxane)s
- P89** D.C. Tuncaboylu, O. Okay
Single-hole macroporous organogel particles of high toughness and superfast responsiveness
- P90** N. Domnina, S. Filippov, R. Khrustaleva, O. Sergeeva, E. Komarova, A. Lezov
Hybrid macromolecular antioxidants: synthesis, properties and application in medicine.

- P91** H. Kaczmarek, J. Kowalonek, D. Bajer
Surface properties of poly(vinyl alcohol) with iron chloride (III) before and after UV irradiation
- P92** H. Kaczmarek, P. Gałka, A. Dąbrowska, I. Dąbrowska
Nanohardness studies of poly(methyl methacrylate) doped with photoinitiator
- P93** Á. Némethy, B.S. Gyarmati, T. Gyenes, B. Pukánszky, A. Szilágyi
Preparation and characterization of poly(aspartic acid)-gelatin co-networks
- P94** L. Michlovská, L. Vojtová, L. Mravcová, S. Hermanová, J. Jančář
Optimizing conditions for functionalization of PLGA-PEG-PLGA copolymer with itaconic anhydride
- P95** N. Permyakova, T. Zheltonozhskaya, L. Kunitskaya
Synthesis and characterization of double-hydrophilic block copolymers based on monomethyl ether of poly(ethylene oxide) and poly(acrylic acid) with the different block lengths
- P96** J. Czernek
Modeling the molecular recognition of nucleic acid bases by polymeric receptors
- P97** I. Fortelný
Origin and adequate model of coalescence in quiescent polymer blends
- P98** A. Havránek
Differential law for energy transfer in muscles
- P99** J. Nožár, S. Nešpůrek
Polarons in polymers, determining its dynamical properties
- P100** P. Toman, S. Nešpůrek, M. Weiter, M. Vala, W. Bartkowiak
Modeling of charge carrier transport in conjugated polymers doped by polar additives
- P101** A. Sikorski, J. Rybicka, P. Adamczyk
Properties of copolymers adsorbed on homogenous and patterned surfaces
- P102** P. Romiszowski, A. Sikorski
Structure of the multi-chain polymer system confined in an adsorbing slit - Monte Carlo simulation
- P103** Z. Kroneková, E. Papajová, I. Krupa, I. Lacík
Comparison of physical properties and mechanical stability of alginate hydrogels prepared by internal gelling depending on the alginate type and gelling conditions
- P104** P. Cifra, Z. Benkova, T. Bleha
Shape transition on confinement of flexible and stiff macromolecules