



INSTITUTE OF MACROMOLECULAR CHEMISTRY
ACADEMY OF SCIENCES OF THE CZECH REPUBLIC
INSTITUTE OF CHEMICAL TECHNOLOGY PRAGUE
THE EUROPEAN MEMBRANE SOCIETY
EU PROJECT MARIE CURIE CONFERENCE AND TRAINING COURSES

XXIII EMS Summer School on Membranes

SMART MATERIALS



PRAGUE, September 3-6, 2006

second circular

XXIII EMS Summer School on Membranes

SMART MATERIALS

Chairman: Miroslav BLEHA

Co-chairman: Bohumil BERNAUER

SCOPE

Due to a large variety of complex architectures, self-organization processes and modifying chemical reactions, polymers represent a particularly rich area which can be exploited to obtain materials with new properties. The meeting will give an insight into polymer membrane preparation using these materials for separation techniques and renewable power supply.

TOPICS

- Synthesis and characterization of polymer membranes
- Inorganic membranes - hybrid systems
- Chemical modification of polymer electrolytes
- Electrochemical methods for membrane characterization
- Transport across membranes, mathematical models

PROGRAMME

The scientific programme will consist of invited lectures of 40 min and additional 10 min for discussion on all the topics. The lectures will be supplemented with two panel discussions to assess the status and the needs for future research in the field of membrane science. In total, the presentations including the discussions will take 23 hours.

PUBLICATION

Summaries of main lectures will be published in the *Programme Booklet* which will be available at the registration desk.

PROGRAMME

Sunday, 3 September

- 10:00 On-site registration
- 16:00 Opening
- 16:30 **Opening lecture**
ENRICO DRIOLI (*Italy*)
Smart materials for smart membrane operations
- 17:30 **Panel discussion**
- 19:00 *An informal get-together party*

Monday, 4 September

- 9:00 – 10:40 KLAUS-VICTOR PEINEMANN (*Germany*)
Multicomponent smart membrane structures
- 10:40 – 11:00 *Coffee break*
- 11:00 – 11:50 EVA MARAND (*USA*)
Polymeric nanocomposite membranes designed for gas separation
- 12:00 – 14:00 *Lunch*
- 14:00 – 15:40 FLORENCE BOSCH, ANNE JULBE, ANDRÉ AYRAL (*France*)
Ceramic membranes: basic concepts and new trends in the design of tailor-made, multifunctional and adaptive materials
- 15:40 – 16:00 *Coffee break*
- 16:00 – 16:50 INGE GENNÉ (*Belgium*)
Polymeric membranes designed for pressure-driven membrane filtration applications
- 16:50 – 17:40 ENRICO DRIOLI (*Italy*)
Membrane contactors
- 18:00 *Dinner*

**Tuesday,
5 September**

9:00 – 10:40

VASILIS BURGANOS (*Greece*)

Structure and transport simulations on the microscopic scale for membrane materials

10:40 – 11:00

Coffee break

11:00 – 11:50

BOHUMIL BERNAUER (*Czech Republic*)

Phenomenological models of transport and separation in membranes

12:00 – 14:00

Lunch

14:00 – 15:15

JEAN-ALAIN DALMON (*France*)

Catalytic membrane reactors: concepts, materials and applications

15:15 – 15:35

Coffee break

15:35 – 16:25

GUNNAR JONSSON (*Denmark*)

Combining membrane separation and fermentation processes for improved performance

16:25 – 18:00

Discussion

18:00

Dinner

**Wednesday,
6 September**

9:00 – 10:40

SUZANA PEREIRA NUNES (*Germany*)

Membranes for fuel cell and hydrogen technology

10:40 – 11:00

Coffee break

11:00 – 11:50

KAREL BOUZEK (*Czech Republic*)

Electrochemical methods for characterization of ion-selective membranes with a focus on their utilization in the proton-exchange-membrane fuel cells

12:00 – 14:00

Lunch

- 14:00 – 14:50 JOAO G. CRESPO (*Portugal*)
Membrane processing using neoteric solvents
- 14:50 – 15:40 ALBERTO FIGOLI (*Italy*)
New concepts to produce innovative polymeric membranes for broad range of applications
- 15:40 – 16:00 *Coffee break*
- 16:00 – 16:50 **Additional two short ad hoc lectures on current issues**
- 16:50 – 17:40 **Closing lecture**
MATTHIAS WESSLING (*Netherland*)
Smart membranes rely on smart architects
- 19:00 Farewell dinner

Thursday,

7 September

08:00 – 18:00 Excursion

SOCIAL EVENTS

Sunday, 3 September

19:00- An informal get-together party

Wednesday, 6 September

19:00 Farewell dinner,

After the last lecture, all participants are invited to a farewell dinner in the Klášterní Šenk restaurant.

Thursday, 7 September

08:00-18:00 **Excursion**

A visit to the MEGA, Ltd., a Czech producer of ion exchange membranes, equipment for electrodialysis and electrodeionization.

The excursion continues in the Lemberk castle (<http://www.szlembek.xf.cz/>). The Baroque Lemberk castle was built on the walls of a fort from the 13th century. The best-known inhabitant of Lemberk was St. Zdislava, the wife of the founder of the castle, Havel Markvartic. She is reminded by the museum and the small well below the chateau. The sightseeing presents Renaissance and Baroque interiors, kitchen, chapel and the office of the lord. There is the exposition of current glass-making art in the chateau.

GENERAL INFORMATION

VENUE

Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic, Heyrovského nám. 2, Praha 6.

LANGUAGE

English is the working language of the Summer school; no translation will be provided. All materials for publication must be submitted in English.

PRESENTATION FACILITIES

Data-Video-Projector (XGA) connected to a local PC will be available. Following media can be used for transfer of data: FDD 3.5", CD, DVD, USB-Flash. Other supported inputs are via: PCMCIA, IEEE 1394 ports, 4-in-1 Card Reader-Multimedia Card, Secure Digital, Smart Media, or from VHS. No connection of private notebooks or laptops will be allowed. Full functionality of the presentation will be checked by the technical staff in advance.

In addition, an overhead projector will be available.

REGISTRATION

Please submit the registration **by 30 June 2006**, using web <http://www.imc.cas.cz/sympo/emsss/>. The registered persons will be notified by e-mail.

The number of student participants is limited to 60. Doctoral students have to provide their student status by sending an official statement from their university via airmail or fax.

REGISTRATION FEES

	Before 30 June 2006	After 30 June
Full fee	350 €	400 €
Student fee	350 €*	350 €*

The registration fee for a participant includes programme booklet, admission to all sessions, lunches, dinners, coffee break, refreshments, and the welcome and farewell receptions.

*The student registration fee also includes accommodation in Kajetánka dormitory.

Remittance of fees

Please order your bank to transfer the respective amount to the account:

Account name:	Ustav makromolekulární chemie AV CR, Heyrovskeho nam. 2, 162 06 Praha 6
Account number:	478387443/0300
Variable symbol:	8142
Payment title:	355
Bank:	Ceskoslovenska obchodni banka (address: Na prikope 14, CZ-115 20 Praha 1, Czech Republic.)
IBAN:	CZ14 0300 0000 0004 7838 7443
BIC:	CEKOCZPP

The PMM Secretariat is able to accept mail order payments with embossed Eurocard/Mastercard or VISA cards. Please fill in the form (can be generated from the on-line registration form after submission of your registration), sign it and send to the address of the P.M.M. Secretariat by airmail.

The receipt of payment will be confirmed.

Cancellation

In the event of cancellation of participation, a full refund of the fees paid (less an administrative bank tax) will be made if the PMM Secretariat receives notification before 25 July 2006. Only 75 % of the fees paid will be refunded if cancellation is received after 25 July but before 10 August 2006.

In any case, please inform the PMM Secretariat where to return the payment (bank, address, and account No.). Refunds will not be issued for cancellations received after 31 July 2006.

ACCOMMODATION inclusive of breakfast has been reserved in the Kajetánka dormitory, Praha 6, Radimova 12. Participants wishing to lodge in the Kajetánka dormitory should indicate their reservation requirement in the registration form. In the dormitory, double rooms are available. If you wish to share a room with a certain person, please give the name of your roommate in the *Registration form*. On the departure day, the room must be cleared at noon at the latest.

Morning transport from the Kajetánka dormitory to the Institute will be provided by bus.

A list of hotels of various categories including a student hostel will be available on the web of Congress Agency EKU (CZ -110 00 Praha 1, Vodičkova 17, e-mail info@eku.cz, <http://www.eku.cz>, phone/fax +420-224 947 589).

APPLICATION FOR VISAS

A valid passport is required for entry into the Czech Republic. The visas are valid for three months from the date of issue; please note that your visa must be valid until the end of your stay in the Czech Republic. Visas are not required if participants come from countries having a visa-free agreement with the Czech Republic.

INSURANCE

Participants are advised to arrange, prior to departure, health and travel insurance and whatever insurance they consider necessary. The registration fees do not include provision of any insurance. Neither organizing institutions nor their representatives assume responsibility or liability for personal accident and loss or damage to belongings however caused.

REFRESHMENTS AND LUNCHESES

Coffee, tea, and soft drinks (included in the registration fee) will be available during the breaks of the programme sessions.

Lunches (included in the registration fee) will be served from Monday to Thursday from 12:30 to 13:30) for active participants and registered accompanying persons. Admission by tickets only.

DEADLINES

Application package	31 May 2006
Camera-ready summaries	15 June 2006
Reservation and payment of accommodation in student dormitory	30 June 2006
Registration form	30 June 2006
Cancellation of registration (if full refund is required)	25 July 2006

ON ARRIVAL IN PRAGUE

Currency, exchange, payment cards

Foreign currency may be brought into the Czech Republic without restrictions. The official currency in the Czech Republic is the Czech Crown (Kč). It can be purchased in banks and other exchange offices. The exchange rate is about 28 Kč for 1 € (Euro) in June 2006.

Common international payment cards are usually accepted. Please make inquiries before asking services.

Transport

The international airport Praha is situated in Ruzyně about 20 km (12 miles) from the city centre and 8 km from the Institute, and is well served by city transport (prepaid tickets have to be validated in the bus, see Public transport below). In addition, airport buses operated by CEDAZ run in about 30-min intervals from the airport to the city terminal (Praha 1, Náměstí Republiky, Metro station of the yellow line B) from 05:30 till 21:30. Airport-bus fare: 90 Kč to the city centre, 60 Kč to Dejvická Metro station (in May 2006), and express bus line AE runs in 30-min intervals from the airport to Dejvická and Holešovice railway station (fare 45 Kč to Holešovice, 30 Kč to Dejvická)

International trains arrive in Prague at the following railway stations: Praha - hlavní nádraží (Main Station; a Metro station of red line C), Praha - Holešovice (Metro station of red line C), and Praha - Smíchov (Metro station of yellow line B).

No special transport for the Conference participants from the airport and railway stations is organized.

Public transport

In Prague, an integrated transport system (underground Metro, trams, and buses) operates without conductors. Tickets must be purchased in advance and stamped inside tram or bus, or before passing the gates of the Metro. Ticket machines are in all Metro stations.

In buses, the most common 75-min tickets can be purchased also from the driver, but with an additional charge of 5 Kč and with the exact change only. Tickets for 14 Kč for a single 20-min journey by tram or bus, or five-stop journey by Metro - as well as transfer tickets for 14 Kč

for a 75-min journey (at night, on Saturdays and Sundays 90-min) by all means of transport are on sale at the airport, at railway stations, newspaper stands and tobacco shops, at hotel reception desks, in restaurants, etc. The Metro runs from 05:00 till midnight. The timetables are available on Internet: <http://www.idos.cz>

How to reach the Institute of Macromolecular Chemistry (Praha 6, Petřiny area)

- From the Prague Airport, bus No. 179 takes you directly to the Institute ("Petřiny" stop, between 14 stops from Terminal Sever [North] 1 and 9 stops from Terminal Jih [South]).
- From the Main Railway Station (Hlavní nádraží), travel by Metro red line C (the direction of Ládví) as far as "Vltavská" station (2 stops). From there, take tram No. 1 (the direction of Petřiny) to the terminus "Petřiny" (14 stops).
For more details, see <http://www.imc.cas.cz/sympo/ginfo/>, <http://www.imc.cas.cz/en/imc/howgetto.html> .
- From the Kajetánka dormitory, take any of buses No 108, 174, 180 uphill (the direction of Ciolkovského, Velká Ohrada, or Sídliště Řepy) to the "Vypich" stop (2 stops) and change for bus No 191, 179, or 184 (in the direction of Letiště Ruzyně or Petřiny) as far as the Petřiny stop.
Special transport will be provided to the Institute on Monday, Tuesday, and Wednesday morning: A shuttle bus will depart at 8:20 and 8:40 from the dormitory.

How to reach the Kajetánka dormitory

Please, see <http://www.imc.cas.cz/sympo/ginfo/pg/pguikaj.htm>

- From the Institute, take any bus (179, 184, 191) in the direction of Nové Butovice or Na Knížecí as far as the "Vypich" stop (3 stops), and change for any of buses 108, 174, 180 downhill to the "Kajetánka" stop (2 stops).
- From the airport, take bus 179 as far as Vypich stop, and change for any of buses 108, 174, 180 downhill to the "Kajetánka" stop (2 stops).
- From main railway station (Praha hlavní nádraží), take Metro line C in the direction of Háje for 1 stop to Museum, then change for line A in the direction of Dejvická. At Hradčanská (4th stop) change for bus 108 or 174 (the

direction of Ciolkovského or Velká Ohrada) and get off at 3rd stop (Kajetánka).

- From the Florenc central coach station, take Metro line C in the direction of Háje for 2 stops to Museum, then change for line A in the direction of Dejvická. At Hradčanská (4th stop) change for bus 108 or 174 (the direction of Ciolkovského or Velká Ohrada) and get off at Kajetánka (3 stops).
- From the Praha-Holešovice railway station, take tram 15 in the direction of Vypich and get off at the Drinopol stop (13th stop) and walk ca 400 m downhill; you may also change at Vozovna Střešovice (9th stop) for bus 108, 174, 180 in the same direction and get off at the 2nd stop Kajetánka.

Taxi

Taxis can be hired at the airport or the railway stations. The fare is max. 25 Kč per kilometre and 34 Kč is the boarding fee within the city boundaries (2006 prices). A special taxi fare from the Prague Airport to the Institute of Macromolecular Chemistry is 500-600 Kč, to downtown 600-700 Kč. The Airport minibus service CEDAZ provides transport to the City for 360 Kč (1-4 persons).

We recommend negotiating the fare before entering a taxi.

Address

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DETAILED AND TOPICAL INFORMATION

<http://www.imc.cas.cz/sympo/emsss/>

XXIII EMS SUMMER SCHOOL ON MEMBRANES

Under the auspices of the
THE EUROPEAN MEMBRANE SOCIETY

TOROVE LEIKNES
President of the EMS

within the frame of the EU project
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