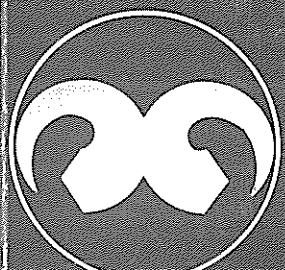


sixth annual meeting



THE POLYMER PROCESSING SOCIETY

J. Vlachopoulos

**NICE FRANCE
APRIL 17-20 1990**

VOLUME 6

**ORGANISED BY
ÉCOLE NATIONALE SUPÉRIEURE
DES MINES DE PARIS
CENTRE DE MISE EN FORME DES
MATÉRIAUX
FRANCE**

**UNDER THE HIGH PATRONAGE OF
MONSIEUR LE MINISTRE DE LA RECHERCHE ET
DE LA TECHNOLOGIE**

abstracts

THE POLYMER PROCESSING SOCIETY (PPS)

The PPS was founded on March 28-29, 1985 at Akron, Ohio (USA). The audience of the Founding Meeting more than 200 experts from all over the world, of both industrial companies and universities, enthusiastically approved the objectives of the new society. On April 1-4, 1986, the Second Annual Meeting was held at Montreal, Canada, attracting over 300 participants. The PPS continued its advancement : approximately 450 persons attended the Third Annual PPS Meeting in Stuttgart, West Germany, and the Fourth Annual PPS Meeting in Orlando, USA. The Fifth Annual Meeting was held in Kyoto, Japan with a significant international participation in an excellent scientific and technical program.

The goal of the PPS, as embodied in its constitution, is to foster scientific understanding and technical innovation by providing a discussion forum for the world-wide community of engineers and scientists in this fields. The thematic range of the PPS encompasses all formulation, conversion and shaping operations applied to polymeric systems in the transformation from their monomeric forms to commercial products.

In addition to the international annual conferences, the PPS activities include the arrangement of regional and local meetings, publication of a journal, and sponsorship of educational seminars.

Membership in the PPS is open to all research workers in the field, and to all individuals who feel the activities of the society advance their professional development. The benefits for members consist of obtaining the official PPS journal free of cost, and in the opportunity to attend the Annual Meetings for a reduced fee.

Future PPS Annual Meetings :

April 21-24, 1991 : Toronto, Canada
Spring 1992 : New-Delhi, India

CONFERENCE COMMITTEE

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Co-Chairman
Program chairmen
General Secretary
Treasurers
External Relations

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M. Vincent
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J. Minoux, L. Monnerie, J.P. Vairon, C. Wippler, C. Wolff.

POLYMER PROCESSING SOCIETY

EXECUTIVE COMMITTEE

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President-Elect
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Treasurer
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H.G. Fritz
T. Masuda
G. Vassilatos
A.I. Isayev
L.A. Utracki
J.F. Agassant - Y. Oyanagi

INTERNATIONAL REPRESENTATIVES

M.R. Kamal (Canada)
K.U. Kim (S. Korea)
M. Lambla (France)

P. Lemstra (Netherlands)
J.F. Stevenson (USA)
H. Takahashi (Japan)

COMMITTEE ON PROFESSIONAL AFFAIRS

M.R. Kamal (Canada)

COMMITTEE ON PPS WORKING GROUPS

J.T. Lindt (USA)

PUBLIC RELATIONS

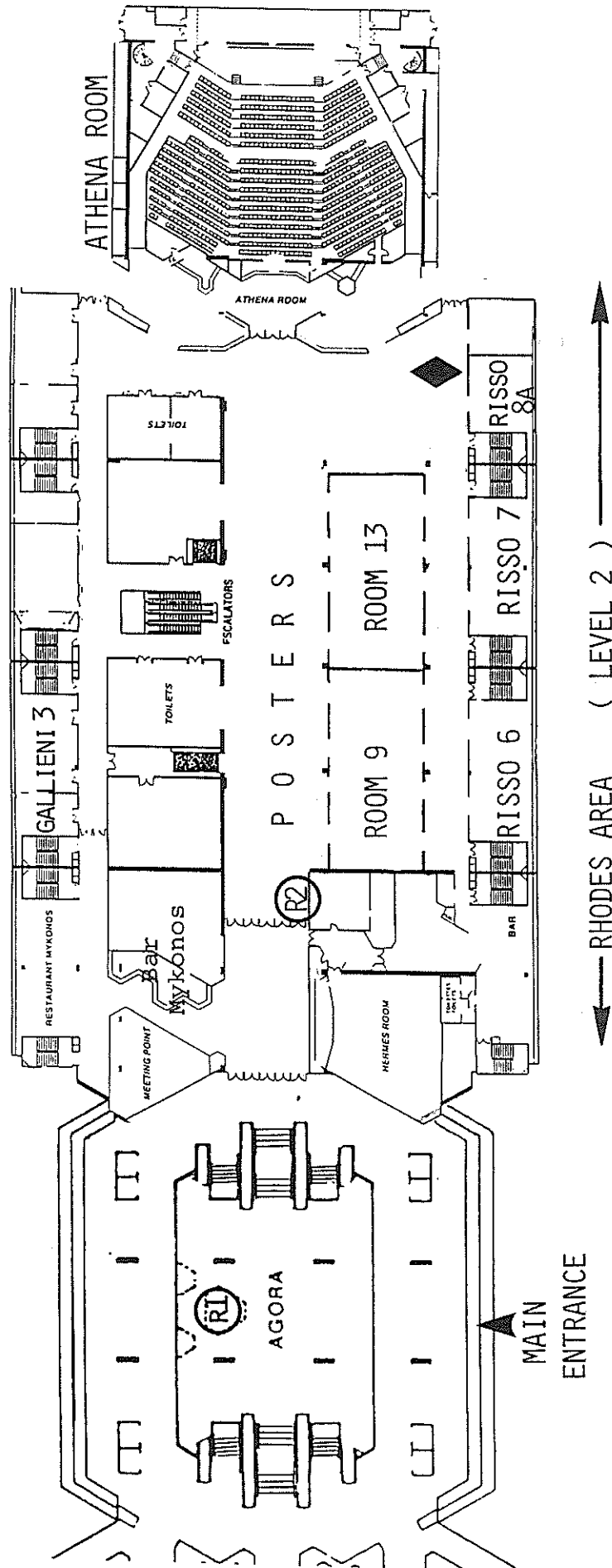
W. Glenz (W.-Germany)

E.M. Immergut (USA)

GENERAL SCHEDULE

DATE	ROOM	8	9	10	11	12	13	14	15	16	17	18	19	20	21			
April 17 (Tuesday)	AGORA LEVEL 1											Registration						
	GALLIENI 3	PPS Seminar						PPS Seminar										
	ROOM N° 9													Business Mtg				
	AGORA LEVEL 2														Welcome Reception			
April 18 (Wednesday)	AGORA LEVEL 1	Registration																
	ATHENA ROOM	OPENING	Ple-nary Lect.															
	ROOMS N° 9, 13 RISSO 6 & 7	Oral Sessions										Oral Sessions						
	RHODES AREA							Poster Session 1										
		Excursion Grasse - St-Paul															Recept. Mairie Nice	
April 19 (Thursday)	RHODES AREA	Registration																
	ROOMS N° 9, 13 RISSO 6 & 7	Oral Sessions										Oral Sessions						
	RHODES AREA							Poster Session 2										
		Excursion Antibes - Cannes - Biot - Vallauris																
	LES MUSES LEVEL 3														Banquet			
April 20 (Friday)	RHODES AREA	Registration																
	ROOMS N° 9, 13 RISSO 6 & 7	Oral Sessions										Oral Sessions						
		Excursion Eze - Monaco																
	RHODES AREA													Closing party				
April 21 (Saturday)	ROOM RISSO 8A	VAMAS Mtg.																
		Excursion St-Tropez																

ACROPOLIS



R1 : REGISTRATION DESK (17&18 APRIL 1990)

R2 : REGISTRATION DESK (19&20 APRIL 1990)

◆ : CONFERENCE DESK

GENERAL INFORMATION

1 - REGISTRATION PLACE AND HOURS

The registration desk is open during the meeting at the Acropolis Convention Hall at the following hours and locations :

Tuesday	17th April	16:00 - 20:00	Agora (level 1)
Wednesday	18th April	08:00 - 16:00	Agora (level 1)
Thursday	19th April	08:30 - 16:00	Rhodes area (level 2)
Friday	20th April	08:30 - 12:00	Rhodes area (level 2)

For an on-site registration, please fill in the registration form, and submit it to the registration desk
- Payment should be made in French Francs.

2 - REGISTRATION FEES (after 1st february, 1990)

Participants • PPS members • Non-members* • Students	2 000 FF 2 500 FF 800 FF
Accompanying persons	400 FF
One day registration	900 FF

* to non-members : you are invited to join the PPS. By paying the membership dues of 350 FF, for the next business year, you will save on the conference fees. Please declare your intention on the Registration Form.

3- NAME CARDS

All the participants are requested to wear the PPS-6 name card during the meeting.

4 - LANGUAGE

The official conference language is English.

5 - MESSAGES

Message boards will be available near the registration desk and near the conference desk.
For leaving a message, contact the Conference Committee in Acropolis at the following phone number : (33) 93 92 81 31

6 - CONFERENCE DESK

A conference desk will be open in Rhodes area, near room Risso 8A entrance.

13 - TRAVEL AGENCY

Kuoni will open a desk in the registration area for travel arrangements, accomodation, reservations, excursions. All correspondence concerning these should be addressed to Kuoni International Travel Organisation :

KUONI
3 boulevard Victor Hugo
F-06000 NICE
Tel. (33) 93 16 08 03
Fax.: (33) 93 82 23 51
Telex : KUONI 460946

14 - ACCOMPANYING PERSON

Room Risso 8A will be at the disposal of accompanying persons.

15 - TOURISM

Each participant will receive a tourist guide of the "Côte d'Azur" (French Riviera) to help discover the charms of this region.

Tourist information centers :

- Nice-Côte d'Azur Airport Tel : 93 21 30 30
- Tourism Office in Nice, 1 avenue Thiers Tel : 93 87 07 07

16 - CLIMATE AND CLOTHING

In the middle of April, the climate in Nice is very comfortable with average temperature of 15 °C (62°F). Spring clothing is most suitable for this time of year, with a raincoat and sweater for wet weather and cool evenings.

7 - CURRENCY

French Francs can be purchased in most banks (opening usually from Tuesday to Friday, between 9:00-12:00 and 14:00-16:30), in exchange offices (more opening days and hours than banks) located in the center of Nice near the Acropolis (rue de la République) and near hotels. The current exchange rate is about US \$ 1.00 = 6.00 FF (January 90). The PPS secretariat in Acropolis will only accept French Francs.

8 - TELEPHONE

Public telephones for domestic and international calls are available at the Acropolis. Coins or phonecards can be used. Phonecards can be purchased at tabaconists (in French : "Tabac"). There is one indoor near the registration desk. Price of phonecards is either : 50 FF or 90 FF. There is a post office close to the Acropolis (see the enclosed map).

9 - ACCESS TO NICE

Nice can be reached by train, or by plane. Nice-Côte d'Azur International Airport is the second largest Airport in France after Paris Airports. There are many direct flights from more than 20 towns in Europe, from North America (Los Angeles, New York, Montreal, Toronto), from Middle East countries and Africa. From other countries, one can take a flight through Paris (about 20 flights per day from Paris to Nice - duration : 1 h 15 mn).

The center of town (about 6 km from the airport) can be reached by airport bus shuttle (10 minutes from the airport to the Acropolis - departure every 15/20 minutes - Price : 17 FF), or by taxi (Price : around 110 FF)

10 - TRANSPORTATION

Shuttle buses will be arranged to connect the Acropolis located in the center of Nice to hotels. Public buses (line number 4 or 16, bus stop "Acropolis" on Boulevard Risso) and taxis are also available.

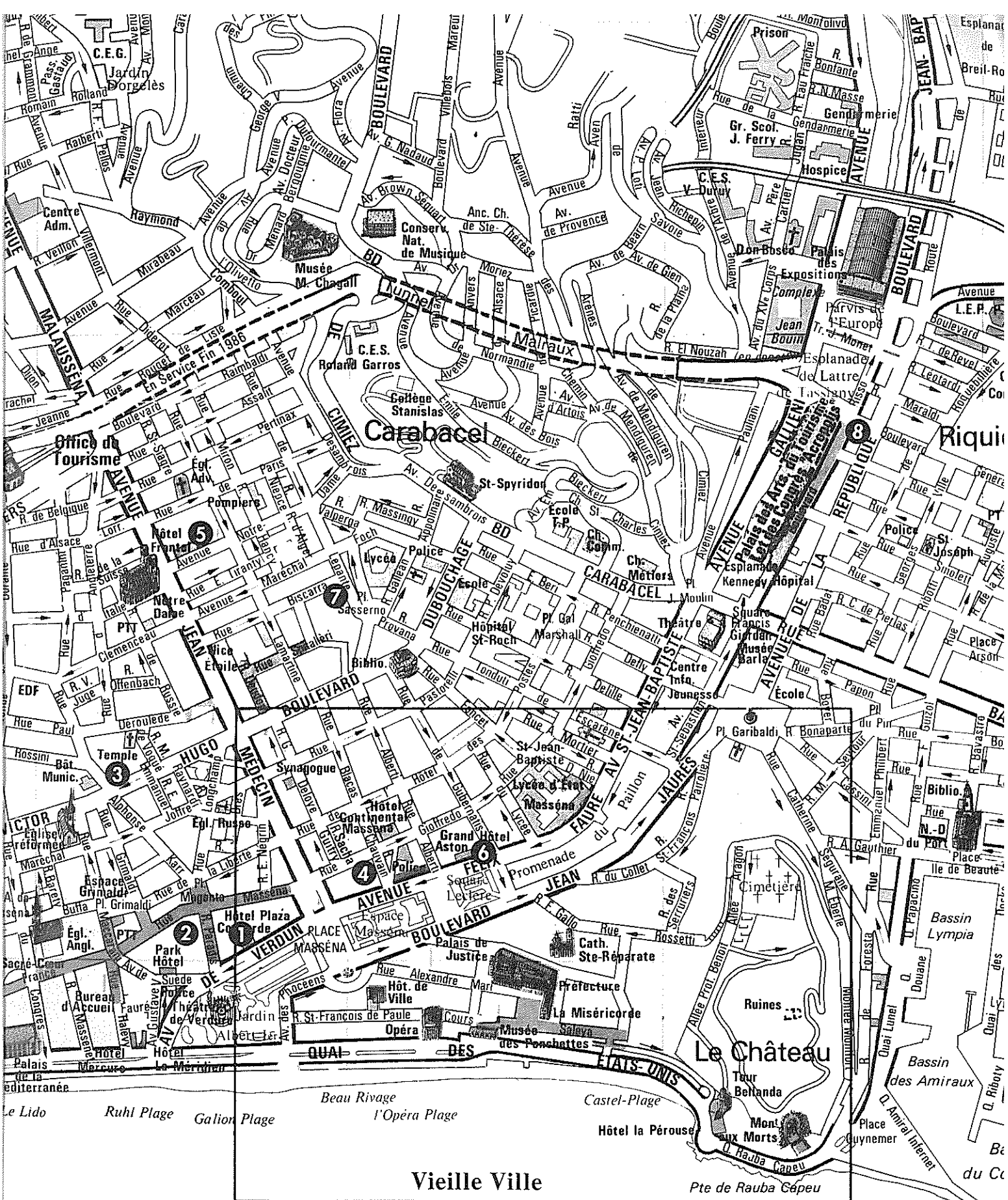
11 - HOTELS

Participants will be located in several hotels in the heart of Nice, about 1200 meters from the Acropolis (see the enclosed map). If you didn't send back the registration form which was attached to the second circular, and if you need an hotel reservation, please contact directly Kuoni Travel Agency (see paragraph 13 for the address). Prices are as follow :

Category A : 450-700 FF
Category B : 300-450 FF
Category C : less than 300 FF

12 - LUNCH SERVICE

Snacks will be available at the bar "Mykonos" (entrance of Rhodes area) payable in French Francs. There is also a restaurant at "Mykonos", and numerous others are in the neighbourhood of the Acropolis.



- ① HOTEL PLAZA - 12, avenue de Verdun
- ② HOTEL PARK - 6, avenue de Suède
- ③ HOTEL ATLANTIC - 12, Bd Victor Hugo
- ④ HOTEL DE MULHOUSE - 9, rue Chauvain

- ⑤ HOTEL PULLMAN - 28, avenue Notre-Dame
- ⑥ HOTEL ASTON - 12, avenue Félix-Faure
- ⑦ HOTEL LEPANTE - 6, rue Lépanthe
- ⑧ HOTEL GOLD - 20, Bd Risso

RELATED EVENTS

1. PPS SEMINAR ON "MICROSTRUCTURAL CHARACTERIZATION OF POLYMERIC SYSTEMS"

The Polymer Processing Society will hold the Pre-Congress Seminar in Nice - France, coordinated by Professors M. Kamal (Canada) and M. Lambla (France). All engineers and scientists interested in the field are welcomed to the seminar.

Date :

Tuesday, 17th April 1990
9:00 - 17:30

Location :

Acropolis Art and Convention Center
Rhodes area, level 2, room GALLIENI 3
1, Esplanade Kennedy - 06300 NICE
Tel. : (33) 93 92 83 00
Fax : (33) 93 92 82 55

Fees :

- 300 US \$
Registration location : at the entrance of room
GALLIENI 3

Lectures :

- 1.1 Spectrometric analysis (FTIR, NMR)
M.F. GRENIER-LOUSTALOT, Université de PAU, France
- 1.2 Thermal Analysis (DSC, DTA, ...)
H. BAIR, AT & T BELL Labs (NJ, USA)
- 1.3 Scattering Techniques (X-ray, ...)
A. SKOULIOS, ICS (CRM, EAHP), France
- 1.4 Orientation Phenomena
J.M. HAUDIN, CEMEF, Ecole des Mines de Paris, France

For information and registration, please contact :

Pr Morand LAMBLA
EAHP ; 4, Rue Boussingault
F 67000 - STRASBOURG
Phone : (33) 88 41 65 00
Fax : (33) 88 61 04 62

2. ANNUAL BUSINESS MEETING OF THE POLYMER PROCESSING SOCIETY

Open to all PPS members

17 April, 1990 at 17:30

Acropolis Art and Convention Center, Rhodes Area, level 2, Room N° 9

3. VAMAS : TECHNICAL WORKING PARTY ON POLYMER BLENDS

Date :

Saturday, April 21, 1990
9:00-12:00

Location :

Acropolis Art and Convention Center
Rhodes area, level 2, room Risso 8A

Agenda :

1. Introduction (L.A. Utracki)
2. Summary of the round-robin test results on commercial polymer alloys (PP/PA)
 - a. melt rheology (L. Choplin)
 - b. dynamic testing of solids (C. Wippler)
 - c. thermal analysis (G. Pastuska)
 - d. morphology (E. Butt)
 - e. mechanical properties (I.K.Partridge)
 - f. other results
3. Discussion
4. Conclusions and closing

The Versailles Project on Advanced Materials and Standards (VAMAS) supports trade in high technology products through international collaborative projects aimed at providing the technical basis for drafting codes of practice and specifications for advanced materials. The scope of the collaboration embraces all agreed aspects of enabling science and technology - which are required as a precursor to the drafting of standards for advanced materials. VAMAS activity emphasizes collaboration on pre-standards measurement research, intercomparison of test results, and consolidation of existing views on priorities for standardization action. Through this activity, VAMAS fosters the development of internationally acceptable standards for advanced materials by the various existing standards agencies.

VAMAS operates under a Memorandum of Understanding signed by senior representatives of government in seven countries of the Economic Summits and of the Commission of the European Communities. The participating countries, Canada, France, F.R. Germany, Italy, Japan, the U.K., the U.S., and the Commission of European Communities are each represented on its Steering Committee. We extend our warmest welcome to all interested in science and technology of polymer alloys and blends. In particular, bienvenue to members of "GIS Alliages".

SCIENTIFIC PROGRAM

1. PLENARY LECTURE

Title : Dynamics of entangled polymers : application to adhesion processes.
Professor P.G. de GENNES (France)

2. SYMPOSIA : SYMPOSIA ORGANIZERS

- | | |
|---|---|
| 1 Polymerization and Reactive Processing
A.E. HAMIELEC, A. MICHEL, S. OMI | 7 Polymer Blends
M. LAMBLA, L.A. GOETTLER |
| 2 Rheology and Rheometry
L. CHOPLIN, T. MASUDA, P. MONGE | 8 Mixing and Compounding
T. INOUE, J.C. ROBINET, D.B. TODD |
| 3 Molding Technologies
H. TAKAHASHI, J. TERRISSE, A.I. ISAYEV | 9 Polymeric Composites
C.L. TUCKER, C. PILLOT,
Y.M. NADKARNI, D.R. MOORE |
| 4 Plastics and Rubber Extrusion
C. RAUWENDAAL, W. MICHAELI,
T.SAKAI | 10 Liquid Crystalline Polymers
K.F. WISSBRUN, C. NOEL, K.U. KIM |
| 5 Fibers and Films
G. PEREZ, X. XI, J.E. SPRUIELL | 11 Solid State Processing and other
Innovative Technologies
I.M. WARD, R.S. PORTER, H. YOKOI |
| 6 Structure Development in Processing
M. CAKMAK, K. KATAYAMA | 12 Automation Process Control and Sensor
technology
H.G. FRITZ, B. GOURDON, L.R. SCHMIDT |

3 - INSTRUCTION FOR PRESENTATION

Oral Presentations :

Thirty minutes will be allowed for key-note lectures, and twenty minutes for each oral presentation, including time for discussion. Each session room will be provided with both slide and overhead projectors. Please use either of them at your presentation. Slides should be of a size 24 x 36 in 50mm x 50mm frame and a thickness of less than 2mm. The slide projector is operated by a projectionist, and speakers are kindly requested to bring

their slides to the projectionist of their session room at least 60 mn before the beginning of their session. Room Risso 8A will be at the disposal of participants to view their slides. The overhead projector must be operated by the speaker. Speakers are invited to contact the session chairmen to arrange for any detail. Speakers are requested to keep to the time assigned for their talk. A timer will help them.

Poster Presentations :

Two poster sessions are scheduled on 18 and 19 April 1990, from 13:00 to 14:30. All posters should be put up from tuesday 17 April afternoon, and not later than wednesday 18 April at 12:00 A.M., and will be removed on friday 20 April afternoon. Concerned authors are requested to attend their poster the day on which it is scheduled : posters with even numbers (example : P01-04, P08-12) will be scheduled on wednesday 18 April, those with odd numbers (example : P01-03, P08-07)

on thursday 19 April. Poster boards are 180 cm wide and 90 cm high. Poster boards will be identified by the paper number. Posters must be fixed with double faced tape only, staples or drawing pins cannot be used. Poster title, name and address of authors, summary, text, photos, tables, equations and so on must be prepared by the author(s). Figures and letters must be large enough so that one can recognize them at a distance of about 1 meter.

PROGRAM AT A GLANCE

APRIL 18 (Wed.)	8h30 10h00	OPENING CEREMONY AND PLENARY LECTURE - P.G. DE GENNES ATHENA ROOM			
		ROOM RISSO 6	ROOM RISSO 7	ROOM 9	ROOM 13
	10h10 12h00	Symposium n° 6 06-KN1 - 06-04	Symposium n° 8 08-KN1 - 08-04	Symposium n° 11 11-KN1 - 11-04	Symposium n° 12 12-KN1 - 12-04
	13h00 14h30	POSTERS (RHODES AREA) EVEN NUMBERS : P01-02 - P12-02			
	14h30 18h30	Symposium n° 6 06-KN2 - 06-13	Symposium n° 8 08-KN2 - 08-13	Symposium n° 11 11-05 - 11-07 Symposium n° 9 09-KN1 - 09-04	Symposium n° 12 12-05 - 12-09 Symposium n° 10 10-KN1 - 10-04
APRIL 19 (Thurs.)	8h30 12h00	Symposium n° 1 01-KN1 - 01-08	Symposium n° 5 05-KN1 - 05-08	Symposium n° 9 09-05 - 09-13	Symposium n° 10 10-05 - 10-13
	13h00 14h30	POSTERS (RHODES AREA) ODD NUMBERS : P01-01 - P12-01			
	14h30 18H20	Symposium n° 1 01-KN2 - 01-17	Symposium n° 5 05-KN2 - 05-17	Symposium n° 9 09-KN2 - 09-22	Symposium n° 10 10-KN2 - 10-22
APRIL 20 (Friday)	8h30 12h00	Symposium n° 2 02-KN1 - 02-08	Symposium n° 3 03-KN1 - 03-08	Symposium n° 4 04-KN1 - 04-08	Symposium n° 7 07-KN1 - 07-08
	13h30 18h00	Symposium n° 2 02-KN2 - 02-19	Symposium n° 3 03-KN2 - 03-19	Symposium n° 4 04-KN2 - 04-19	Symposium n° 7 07-KN2 - 07-19

APRIL 18, MORNING SESSION

	ATHENA	
9h00	PLENARY LECTURE DYNAMICS OF ENTANGLED POLYMERS : APPLICATION TO ADHESION PROCESS Professor P.G. de Gennes (Collège de France)	
10h00	BREAK	
	RISSO 6	RISSO 7
	Symposium n° 6 "Structure development in processing" Organizers : M. CAKMAK, K. KATAYAMA	Symposium n° 8 "Mixing and compounding" Organizers : T. INOUE, J.C. ROBINET, D.B. TODD
10h10	06-KN1 The roles of heat and solute flow in polymer crystallization <u>J.M. Schultz</u> , National Chemical Laboratory, Pune, INDIA and University of Delaware, Newark, USA	08-KN1 Mixing mechanisms in polymer processing <u>Z. Tadmor</u> ; Technion Institute, ISRAEL
10h40	06-01 Structural formation of poly (p-phenylene-terephthalamide) film <u>T. Amano</u> , T. Nakao, N. Miyashita, T. Fujita, T. Fujiwara ; Asahi Chemical Industry, JAPAN	08-01 The effect of fluid flow decoupling on viscous mixing <u>D. Bigio</u> , D. Young ; University of Maryland, USA
11h00	06-02 Structure formation and properties in biaxially oriented PE films by compression of injected mouldings <u>F. Ania</u> , R. K. Beyer, F. J. Balta-Calleja ; Instituto de Estructura de la Materia, SPAIN	08-02 Mechanism of agglomerate dispersion in simple shear flows S.P. Rwei, D. L. Feke, <u>I. Manas-Zloczower</u> ; Case Western Reserve University, USA
11h20	06-03 Structure and orientation characterization of uniaxial-planar deformed PET films <u>P. Lapersonne</u> , <u>J.F. Tassin</u> , L. Monnerie ; Ecole Supérieure de Physique et Chimie Industrielles de Paris, FRANCE.	08-03 Modeling of flow and mixing in modular intermeshing corotating and tangential counter rotating twin screw extruders <u>J.L. White</u> , S. Montes, M.H. Kim, Y. Wang and W. Szydlowski ; University of Akron, USA
11h40	06-04 Crystallization kinetics of high performance glass fibre reinforced polyamide 6 <u>G. Hinrichsen</u> , F. Lux ; University of Berlin, FRG	08-04 Characterization of dispersive mixing by quantitative particle size measurement <u>O. Eitel</u> , Deutsches Kunststoff-Institut, FRG
12h00	LUNCH	
13h00 14h30	POSTER SESSION	

APRIL 18, MORNING SESSION

	ATHENA	
9h00	PLENARY LECTURE DYNAMICS OF ENTANGLED POLYMERS : APPLICATION TO ADHESION PROCESS Professor P.G. de Gennes (Collège de France)	
10h00	BREAK	
	ROOM 9	ROOM 13
	Symposium n° 11 "Solid state processing and other innovative technologies" Organizers : I.M. WARD, R.S. PORTER, H. YOKOI	Symposium n° 12 "Automation process control and sensor technology" Organizers : H.G. FRITZ, B. GOURDON, L.R. SCHMIDT
10h10	11-KN1 Rolltrusion-properties and modeling <u>J.H. Magill</u> , D.C. Sun ; University of Pittsburgh, USA	12-KN1 A method of process optimization for encapsulation of semiconductor devices <u>J. Saeki</u> , K. Sugino and K. Nishi ; Hitachi, JAPAN
10h40	11-01 Closed-die forging of polyoxymethylene. Interrelations between local deformation, microstructure and mechanical properties T. Valla, B. Monasse, <u>J.M. Haudin</u> , S. Glommeau* ; Ecole des Mines and *Regie Renault, FRANCE	12-01 Design of a dual heat flux sensor and its application to on-line cure monitoring of composite processing <u>L.J. Lee</u> , M.J. Perry and C.W. Lee* ; Ohio State University and *University of Dayton, USA
11h00	11-02 Solid state continuous forging process for biaxially oriented sheets R. Rolles, <u>P.T. Wang</u> , C.H. Chen-Tsai, D.V. Humphries* ; Alcoa and *Humphries & Associates, USA	12-02 A method for the real time analysis of blown film instability P. A. Sweeney, <u>G.A. Campbell</u> ; Clarkson University, USA
11h20	11-03 Modelling of the elastic recovery in forged polymers <u>N. Billon</u> , T. Valla, J.M. Haudin, J.L. Chenot, I. Jeanselme* ; Ecole des Mines and *Regie Renault, FRANCE	12-03 Real time rheometers - the second generation of on line capillary rheometers <u>A. Göttfert</u> ; Göttfert, FRG
11h40	11-04 High frequency heating of filled UHMWPE <u>R. Gauvin</u> , Y. Bélanger, Q.X. Nguyen ; Ecole Polytechnique de Montréal, CANADA	12-04 Sensor development and process control in the field of reactive polymer compounding <u>H.G. Fritz</u> and S. Ultsch ; University of Stuttgart , FRG
12h00	LUNCH	
13h00 14h30	POSTER SESSION	

APRIL 18, AFTERNOON SESSION

	RISSO 6	RISSO 7
	Symposium n° 6 "Structure development in processing" Organizers : M.. CAKMAK, K. KATAYAMA	Symposium n° 8 "Mixing and compounding" Organizers : T. INOUE, J.C. ROBINET, D. B. TODD
14h30 	06-KN2 Melt flow through orifices and melt drawing : resulting structures, properties and creation of new phase with influence on melt rheology <u>A. Keller</u> ; University of Bristol, UK	08-KN2 Scale up effect of internal mixers K. Kawanishi, K. Yagii, Y. Obata, <u>S. I. Kimura</u> ; Japan Synthetic Rubber, JAPAN
15h00 	06-05 Monitoring of structural changes of ultra-high molecular weight polyethylene by drawing and heating with an X-ray TV system <u>A. Kawaguchi</u> , S. Murakami, T. Ohta*, M. Mihoichi**, K. I. Katayama ; Kyoto University and *Osaka University and **Toyobo, JAPAN	08-05 Flow induced polymer-filler interactions : bound polymer properties and bound polymer-free polymer phase separation during mixing <u>G. Akay</u> ; Middle East Technical University, TURKEY and Unilever Research, U.K.
15h20	06-06 Recoiling phenomena in polymer melts <u>J. F. Jansson</u> , M. L. Skytt ; Royal Institute of Technology, SWEDEN	08-06 Mixing and extrusion of high silica - and all silica-natural rubber compounds <u>N. Nakajima</u> , W.J. Shieh, Z.G. Wang ; University of Akron, USA
15h40	06-07 Predicting the structure development in polypropylene injection mouldings A. M. Brito, <u>A. M. Cunha</u> , A.S. Pouzada, R. J. Crawford* ; Universidade do Minho, PORTUGAL and *Queen's University of Belfast, N. IRELAND	08-07 Dispersion of fillers and the electrical conductivity of polymer blends filled with carbon black <u>M. Sumita</u> , K. Sakata, S. Asai, K. Miyasaka ; Tokyo Institute of Technology, JAPAN
16h00	06-08 The morphology in injection-moulded polypropylene. Microbeam x-ray studies using Kratky collimation system <u>P. Zipper</u> , A. Janosi, E. Wrentschur ; University of Graz, AUSTRIA	08-08 Rubber modification of thermoplastic polymers by reactive blending methods <u>E. Martuscelli</u> , M. Malinconico ; IRTPR, CNR, ITALY
16h20	BREAK	
16h50	06-09 Transport phenomena and morphology development during melting of blends of two similar polymers A. K. Ghosh, S. Lorek*, <u>J.T. Lindt</u> ; University of Pittsburgh, USA and *Atochem, FRANCE	08-09 Development of plastic mixing and pelletizing equipment <u>K. Inoue</u> ; Kobe Steel, JAPAN
17h10 	06-10 Flow-induced crystallization in melt blends <u>A.J. McHugh</u> , D.A. Tree ; University of Illinois, USA	08-10 An expert system for a twin screw extrusion process <u>J. Tayeb*</u> , G. Joubert, P. Perrin, B. Cerles ; Rhône Poulenc and *Inra, FRANCE
17h30	06-11 Structure developments in the processing of films of isotactic polypropylene blended with hydrogenated cyclopentadiene oligomer P. Buzio*, S. Cimmino, P. Guarrata, <u>E. Martuscelli</u> , G. Ragosta, C.Silvestre ; IRTPR, CNR and *FIAP Spa, ITALY	08-11 Mixing of solid masterbatch into polymers in single screw extruders <u>H. Benkreiro</u> , M.F. Edwards, D. Polkey, R. Shales, R.Patel ; University of Bradford, U.K.
17h50	06-12 Crystallization kinetics of NY6 under fast cooling G. Titomanlio, V. Brucato, S. Piccarolo and F. D'Oria* ; Università di Palermo and *SNIA Tecnopolimeri, ITALY	08-12 RIM jet impingement mixing : simulation and experiments R. Yeo, <u>A.N. Hrymak</u> , P.E. Wood ; McMaster University, CANADA
18h10	06-13 Effects of processing on morphology and mechanical properties of polybutylene terephthalate (PBT) <u>B. Möglinger</u> , C. Lutz, A. Polsak, U.Fritz ; University of Stuttgart, FRG	08-13 Devolatilization of polymer melts : Machine geometry and scale factors <u>J.A. Biensenberger</u> , S.K. Dey, J. Brizzolara ; Stevens Institute of Technology, USA

APRIL 18, AFTERNOON SESSION

	ROOM 9	ROOM 13
	✓ Symposium n° 11 "Solid state processing and other innovative technologies" Organizers : I.M. WARD, R.S. PORTER, H. YOKOI	Symposium n° 12 "Automation process control and sensor technology" Organizers : H.G. FRITZ, B. GOURDON, L.R. SCHMIDT
14h40	11-05 The structure and properties of oriented chain-extended polyethylene A.K. Powell, G. Craggs, I.M. Ward ; University of Leeds, UK	12-05 Automatic hot-plate butt-welding machine for thermoplastics A.M. Cunha, M.J. Oliveira, M.J. Romero ; Universidade do Minho, PORTUGAL
15h00	11-06 Convergent-divergent dies for biaxial orientation of polymers by solid state extrusion L. Mascia, J. Zhao ; Loughborough University of Technology, UK	12-06 The use of an identification and control package for the automation of the polyamide 11 pipe extrusion process G. Defaye, B. Delfanne*, L. Caralp, J.J. Labaig* ; ENSCP and *Atochem, FRANCE
15h20	11-07 Properties and behaviour of amorphous PET tube when oriented by die drawing G. Craggs, I.M. Ward ; University of Leeds, UK	12-07 Computer aided set point optimization for automatic process control in rubber extrusion B. Kunze, W. Michaeli, G. Menges ; Institut für Kunststoffverarbeitung, FRG
15h40		12-08 Current analysis of the quality of melt for single screw extruders H. Potente, H. Kessler ; University of Paderborn, FRG
16h00		12-09 On-line colour control for colouring of plastics H.J. Netteinbreker, P. Munkes ; Werner & Pfleiderer, FRG
16h20	BREAK	
	Symposium n° 9 "POLYMERIC COMPOSITES" Organizers : C.L. TUCKER III, C. PILLOT, V.M. NADKARNI, D.R. MOORE	Symposium n° 10 "LIQUID CRYSTALLINE POLYMERS" Organizers : K.F. WISSBRUN, C. NOEL, K.U. KIM
16h40	09-KN1 Liquid crystals modified thermoplastics for high performance composites E. Amendola, C. Carfagna, L. Nicolais, D. Acierno, M.R. Nobile ; University of Naples, ITALY	10-KN1 The effect of the orientation and domain structure of nematic thermotropic polymers on the mechanical anisotropy S.I. Suzuki ; Idemitsu Petrochemical, JAPAN
17h10	09-01 In-situ formation of reinforced thermoplastic composites D.G. Baird, A. Sukhadia, A. Datta ; Virginia Polymer Institute & State University, USA	10-01 Hot drawing process of thermotropic polymers : experimental indications and modelling D. Acierno, E. Amendola*, C. Carfagna*, A.T. Dibenedetto**, L. Incarnato*, L. Nicolais*, M.R. Nobile ; University of Salerno, *University of Napoli, ITALY and **University of Connecticut, USA
17h30	09-02 Study of one-polymer composites : polyethylene fibers reinforced polyethylene A. Ajji, R.E. Prud'homme, A. Rochette ; University Laval, CANADA	10-02 The effects of processing conditions on the morphology and mechanical properties of an injection molded thermotropic liquid crystalline polymer N.S.H. Chung, R.A. Weiss, A.E. Zachariades* ; University of Connecticut and *IBM, USA
17h50	09-03 Impact failure in composites P.E. Reed ; Queen Mary & Westfield College, UK	10-03 The pressure and temperature dependence of anisotropic liquid-crystal melts in processing conditions E. Suokas, P. Törmälä ; Tampere University of Technology, FINLAND
18h10	09-04 The PTC effect in random carbon particles polymer composites E. Valot, F. Carmona* ; Centre de Recherche du Carbone Lorraine and *Centre de Recherche Paul Pascal, FRANCE	✓10-04 Processing of thermotropic liquid crystalline polymers under non-isothermal conditions D.G. Baird, A. Datta, P. de Souza, K.G. Blizzard* ; Virginia Polytechnic Institute, USA and *Istituto Donegani, ITALY

APRIL 19, MORNING SESSION

	RISSO 6	RISSO 7
	Symposium n° 1 "Polymerization and reactive processing" Organizers : A.E. HAMIELEC, A. MICHEL, S. OMI	Symposium n° 5 "Fibers and films" Organizers : G. PEREZ, XU XI, J.E. SPRUIELL
8h30	01-KN1 Diffusion and reaction in processing <u>R. Laurence</u> ; University of Massachusetts, USA	05-KN1 The role of liquid-crystalline (nematic) order in fiber spinning <u>A. Ziabicki</u> ; Polish Academy of Sciences, POLAND
9h00	01-01 Viscometric investigations of oligomer curing up to the gel-point <u>A.Y. Malkin</u> ; Research Institute of Plastics, USSR	05-01 Studies on melt spinning instabilities in fiber industry <u>H. Ishihara</u> , S. Hayashi ; Toyobo Research Center, JAPAN
9h20	01-02 Phase separation behavior during curing of rubber modified epoxy resin <u>D.S. Kim, D.H. Kim, S. C. Kim</u> ; Kaist, KOREA	05-02 Issues concerning the rate of heat transfer from a spinline <u>G. Vassilatos, E.R. Schmelzer, M.M. Denn*</u> ; Du Pont de Nemours and *University of California, USA
9h40	01-03 Cure mechanism of low shrinkage unsaturated polyester resins <u>L. James Lee</u> , C. P. Hsu, M. Kinkelaar, P. Hu ; Ohio State University, USA	05-03 Spin line measurement of extensional viscosity and heat transfer coefficients <u>H.H. George</u> ; Mercury Group, USA
10h00	BREAK	
10h20	01-04 Operation and simulation of continuous pilot plant system designed for the thermally- initiated bulk polymerizations <u>S. Omi, K. Inubuse, T. Irie, S. Urushiyama, M. Iso, M. Suka*</u> ; Tokyo University of Agriculture and Technology and *Nippon Plant Technology, JAPAN	05-04 A kinetic study on the shrinking process of sodium 5-sulfo-isophthalate-modified polyester fibre <u>H. Wang, C. Wu</u> ; China Textile University, PRC
10h40	01-05 The influence of the mixing state on the product structure in a mass polymerization tank reactor <u>R. Thiele, J. Breme, D. Jedziny</u> ; Ingenieurhochschule Köthen, GDR	05-05 New aspects in the formation and properties of PAN-based carbon fibers <u>G. Bhat, S. Damodaran, P. Desai, L.H. Peebles Jr*, A.S. Abhiraman</u> ; Georgia Institute of Technology and *Office of Naval Research, USA
11h00	01-06 Polymerization kinetic software for autoclave industrial application <u>B. Boime, P. Dublineau, R. Villain, F. Esnoux</u> ; Aerospatiale, FRANCE	05-06 Polyetherimide melt spun yarn. An interesting new fiber <u>D. Schilo, W. Birkenfeld, B. Böhringer</u> ; Akzo Research Laboratories, FRG
11h20	01-07 New synthetic route of Polyoxytetramethyleneglycol by use of heteropolyacids as catalyst <u>S. Tonomura, S. Yamamatsu, A. Aoshima</u> ; Asahi Chemical Industry, JAPAN	05-07 The development of PET fiber structure and properties through spinning, drawing, and heatsetting <u>W.E. Bessey</u> ; Hoechst Celanese, USA
11h40	01-08 Electron beam processing of hydrophilic polymers in aqueous solution <u>E.W. Merrill, K.A. Dennison*, K.A. Wright</u> ; Massachusetts Institute of Technology and *3M Corporation, USA	05-08 Melt spinning of poly(hydroxybenzoic acid-co-ethylene terephthalate) and poly(ethylene terephthalate) blends <u>S.Y. Kim, K.S. Choi*</u> ; Seoul National University and *Kyungpook Sanup University, KOREA
12h00	LUNCH	
13h00 14H30	POSTER SESSION	

APRIL 19, MORNING SESSION

	ROOM 9	ROOM 13
	Symposium n° 9 (continued) "Polymeric composites" Organizers : C.L. TUCKER III, C. PILLOT, V.M. NADKARNI, D.R. MOORE	Symposium n° 10 (continued) "Liquid crystalline polymers" Organizers : K.F. WISSBRUN, C. NOEL, K.U. KIM
8h40	09-05 A stratified, two-phase model for the flow of sheet molding compound C.R. Sandstrom, <u>C.L. Tucker III</u> ; University of Illinois, USA	10-05 The effects of heat treatment on the properties of a thermotropic LCP fibre <u>J. Sarlin</u> , P. Törmälä ; Tampere University of Technology, FINLAND
9h00	09-06 Application of the mixture theory to the stamping of reinforced polymers R. Ducloux, A. Poitou*, J.F. Agassant, M. Vincent ; Ecole des Mines and *ENS Cachan, FRANCE	10-06 The effects of orientation in layered structures on tensile properties of liquid crystalline copoly(ester carbonates) <u>I. Yamaoka</u> , M. Kawabe, M. Kimura, M. Higuchi, H. Sunago, T. Tomioka ; Nippon Steel, JAPAN
9h20	09-07 Finite element analysis of the compression moulding of long glass fiber reinforced thermoplastic composite <u>Y. Germain</u> , L. Tron ; Atochem, FRANCE	10-07 Properties of liquid crystalline polymeric blends <u>T.M. Malik</u> , P.J. Carreau, N. Chapleau, P.A. Lavoie ; Ecole Polytechnique de Montreal, CANADA
9h40	09-08 Measurements, analysis and simulation of the non-isothermal, non-Newtonian flow of sheet molding compound M. Mahike*, <u>T.A. Osswald</u> ; University of Wisconsin-Madison, USA and *Technical University of Aachen, FRG	10-08 Rheological studies of an all aromatic liquid crystalline polymer <u>J.D. Cloyd</u> , W.J. Jackson Jr., W.R. Darnell, Eastman Chemical Research Laboratories, USA
10h00	BREAK	
10h20	09-09 Numerical simulation of fiber suspension flow in complex geometries J.R. Rosenberg, <u>R. Keunings*</u> , M.M. Denn ; University of California, USA and *Université Catholique de Louvain, BELGIUM	10-09 Influence of the shear and thermally induced texture on the rheological properties of liquid crystalline polymer melts <u>K. Geiger</u> ; University of Stuttgart, FRG
10h40	09-10 Prediction of fiber orientation and anisotropic properties for fiber reinforced composites <u>M. Okubo</u> ; Idemitsu Petrochemical, JAPAN	10-10 The role of disclinations in the annealing, deformation, and flow of thermotropic liquid crystalline polymers <u>R.S. Stein</u> , H.H. Winter, B. Hsiao* ; University of Massachusetts, and *Du Pont de Nemours, USA
11h00	09-11 Long fiber reinforced compounds for injection moldings <u>T. Nakakura</u> , M. Sakai, T. Koba, M. Masutani ; Mitsui Toatsu Chemicals, JAPAN	10-11 Rheological implications of liquid crystalline order in thermotropic polyester systems <u>K.U. Kim</u> , S.S. Hwang, S.I. Hong* ; KIST and *Seoul University, KOREA
11h20	09-12 A finite element/control volume approach to mold filling in anisotropic porous media M.V. Bruschke, <u>S.G. Advani</u> ; University of Delaware, USA	10-12 On the dynamic mechanical behaviour of some liquid-crystal random copolyesters L. Nuel, <u>J.L. Halary</u> ; Ecole Supérieure de Physique et Chimie Industrielles, FRANCE
11h40	09-13 Mold filling and curing analysis of resin injection molding with preplaced fiber mats W.B. Young, R. Lin, K. Han, <u>L. James Lee</u> , M.J. Liou ; Ohio State University, USA	10-13 Physical properties of the blends of a liquid crystalline polyesteramide with polyarylate <u>A. M. Zaldua</u> , M.E. Munoz, J.J. Pena, A. Santamaria ; Facultad de Quimica, SPAIN
12h00	LUNCH	
13h00 14h30	POSTER SESSION	

APRIL 19, AFTERNOON SESSION

	RISSO 6	RISSO 7
	Symposium n° 1 (continued) "Polymerization and reactive processing" Organizers : A.E. HAMIELEC, A. MICHEL, S. OMI	Symposium n° 5 (continued) "Fibers and films" Organizers : G. PEREZ, XU XI, J.E. SPRUIELL
14h30	01-KN2 Exchange reactions in the melt : comparison between homogeneous and heterogeneous processes <u>M. Lambla</u> , G.H. Hu ; Institut Charles Sadron, FRANCE	05-KN2 Structure development in single and double bubble tubular film extrusion <u>J.L. White</u> , H.J. Kang ; University of Akron, USA
15h00	01-09 Fundamental studies on the reactive processing of nylon-6/polypropylene blends S.S. Dagli, M. Xanthos, <u>J.A. Biesenberger</u> ; Stevens Institute of Technology, USA	05-09 Drawing behavior of the hot tube spinning process and its application to co-PET <u>T. Sasamoto</u> , M. Mineo ; Toray Industries, JAPAN
15h20	01-10 Tough thermoplastic polyesters by reactive extrusion with epoxy containing ethylene copolymers <u>M. Heri</u> , J.C. Jannel, P. Robert ; Orkem, FRANCE	05-10 Incremental drawing process for the production of high tenacity nylon 6 and nylon 66 yarns <u>A. Misra</u> , B. Dutta, A.K. Rakshit, K.N. Bhaumik ; Indian Institute of Technology, INDIA
15h40	01-11 Ester group exchange as a powerful tool for the polymer crosslinking C. Gondard, <u>A. Michel</u> ; LMO-CNRS, FRANCE	05-11 Experimental and theoretical analyses of non-woven fiber process <u>T. Kanai</u> , I. Tsuji ; Idemitsu Petrochemical, JAPAN
16h00	01-12 Transesterification of copolyacrylates in the melt <u>G.H. Hu</u> , Y. J. Sun, Y. Holl, M. Lambla ; Institut Charles Sadron, FRANCE	05-12 The drawing and shrinkage characteristics of Poly(ethylene terephthalate) film and fibres <u>V.P. Gupta</u> , S.K. Sett, J. Radhakrishnan ; Indian Institute of Technology, INDIA
16h20	BREAK	
16h40	01-13 Continuous reactor for reactions in the residence time of a quarter of an hour <u>H. Wobbe</u> ; Werner & Pfleiderer, FRG	05-13 Statistical aspects of modified PET fibres strength <u>J. Miličky</u> , O. Senkyr, J. Vanicek* ; College of Mech. & Textile Engineering and *Silon Combine, CZECHOSLOVAKIA
17h00	01-14 Chemical reaction in twin screw extruder : a new method for the residence time distribution assessment P. Cassagnau, C. Mijangos*, A. Michel ; LMO-CNRS, FRANCE and *Instituto de Ciencia Y Tecnologia de Polimeros, SPAIN	05-14 Evaluation of the bulk and surface temperature difference during the production of blown films <u>G.A. Campbell</u> , P. Sweeney, A. Babel, B. Cao ; Clarkson University, USA
17h20	01-15 The reactive extrusion process of the heat resistant methacrylic resin <u>Y. Inoue</u> , T. Koyama, S. Date, M. Moritani ; Sumitomo Chemical, JAPAN	05-15 PET cast film extrusion : parameters governing the contact line with the chill roll C. Ben Makhlouf, P. Barq, J.M. Haudin, <u>P. Bourgin</u> * ; Ecole des Mines de Paris and *Rhône-Poulenc, FRANCE
17h40	01-16 Maleation of polypropylene during extrusion Y. Trolez, C.W. Macosko, A. Bouilloux* ; University of Minnesota, USA and *Atochem, FRANCE	05-16 Stress relaxation while thermosetting biaxially stretched PET film <u>G. Lorentz</u> , Rhône Poulenc, FRANCE
18h00	01-17 Numerical modeling of the flow of a polymerizing polyurethane foam : preliminary results L. Lefebvre, <u>R. Keunings</u> ; Université Catholique de Louvain, BELGIUM	05-17 Electrothermomechanical film : processing of microcellular structure A. Savolainen, K. Kirjavainen, H. Kontinen ; Tampere University of Technology, FINLAND

APRIL 19, AFTERNOON SESSION

	ROOM 9	ROOM 13
	Symposium n° 9 (continued) "Polymeric composites" Organizers : C.L. TUCKER III, C. PILLOT, V.M. NADKARNI, D.R. MOORE	Symposium n° 10 (continued) "Liquid crystalline polymers" Organizers : K.F. WISSBRUN, C. NOEL, K.U. KIM
14h30	09-KN2 Advanced polymer composites processing : science, engineering and economics <u>T.G. Gutowski</u> ; Massachusetts Institute of Technology, USA	10-KN2 Orientation development during processing of liquid crystalline polymers <u>S. Kenig</u> ; Technion, ISRAEL
15h00	09-14 Effects of resin-rich regions on the delamination resistance of a tough resin/carbon fibre composite <u>J.A.M. Jausaud</u> , <u>J.K. Partridge</u> ; Cranfield Institute of Technology, U.K.	10-14 Structure and rheology of aramid solutions <u>S.J. Picken</u> , <u>J. Aerts</u> , <u>A.J. Reuvers</u> , <u>H.L. Doppert</u> , <u>M.G. Northolt</u> ; AKZO Research Laboratories, THE NETHERLANDS
15h20	09-15 Measuring fiber orientation and thermomechanical properties of short fiber composites <u>P. Schwarz</u> , <u>G. Fischer</u> , <u>P. Eyerer</u> ; University of Stuttgart, FRG	10-15 Rheo-optical properties of liquid crystalline polymers <u>P. Moldenaers</u> , <u>H. Yanase*</u> , <u>J. Mewis</u> ; <u>K.U. Leuven</u> , BELGIUM and *Kyoto University, JAPAN.
15h40	09-16 Mould shrinkage in injection-moulded carbon fibre reinforced thermoplastics : measurements and modelling <u>R.N. Askander</u> , <u>C.P. Buckley*</u> ; Courtaulds Research and *UMIST, U.K.	10-16 The simulation of rheology and microstructure in liquid crystalline polymers <u>M.R. Mackley</u> , <u>T.M. Nicholson</u> ; University of Cambridge, UK
16h00	09-17 Microstructural factors influencing the mechanical properties of short-fibre reinforced thermoplastics composites <u>P.R. Hornsby</u> , <u>M.J. Folkes</u> , <u>P.D. Shipton*</u> , <u>W.K. Wong**</u> ; Brunel University, *Courtaulds Research, UK and **Exxon Chemical Int., BELGIUM	10-17 Velocity profiles in the injection molding of liquid crystalline HPC aqueous solutions <u>S. Guido</u> , <u>P.L. Maffettone</u> , <u>N. Grizzuti</u> , <u>G. Marrucci</u> ; University of Napoli, ITALY
16h20	BREAK	
16h40	09-18 The influence of flow path length on the stiffness and toughness of some engineering thermoplastics <u>R.A. Chivers</u> , <u>D.R. Moore</u> , <u>P.E. Morton</u> ; ICI Advanced Materials, UK	10-18 Mixtures of two cellulosic derivatives in solution <u>S. James</u> , <u>J. Schätzle</u> , <u>P. Navard</u> ; Ecole des Mines, FRANCE
17h00	09-19 Influence of the interface adhesion on the mechanical properties of long fiber thermoplastic composites <u>B. Echalié</u> , <u>R. Jacquemet</u> , <u>M. Glemet</u> ; Atochem, FRANCE	10-19 Banded textures in liquid crystalline polymers and their subsequent surface interactions - The effect of changing chemistry <u>D.T. Stell</u> , <u>A.M. Donald</u> , <u>W.A. MacDonald*</u> ; Cavendish Laboratory and *ICI, UK
17h20	09-20 Influence of molding condition on mechanical properties of commingled yarn composite <u>Z. Maekawa</u> , <u>H. Hamada</u> , <u>A. Yokoyama</u> , <u>N. Ikegawa</u> , <u>T. Matsuo*</u> ; Kyoto Institute of Technology and *Toyobo, JAPAN	10-20 Polymer- Polymer transformation reactions of rigid-rod polyesters <u>V. Kalyvas</u> , <u>Z.G. Li</u> , <u>J.E. McIntyre</u> , <u>A.H. Milburn</u> , <u>J.G. Tomka</u> ; University of Leeds, UK
17h40	09-21 Effect of the stacking sequence on tensile properties of peek/carbon fibre laminates <u>A. Cervenka</u> , <u>P.R. Marks*</u> ; Billiton Research, THE NETHERLANDS and *Shell Research, U.K.	10-21 Radial flow of rod-like nematic liquids : textures, transitions and instabilities <u>A.D. Rey</u> ; McGill University, CANADA
18h00	09-22 Mechanical properties of hybrid glass/wood fibers reinforced polystyrene composites <u>D. Malda</u> , <u>B.V. Kokta</u> , <u>C. Daneault</u> ; Université du Québec à Trois-Rivières, CANADA	10-22 The distortion of a nematic solution of rodlike polymer under an external field <u>M. Srinivasarao</u> , <u>G.C. Berry</u> ; Carnegie Mellon University, USA

APRIL 20, MORNING SESSION

	RISSO 6	RISSO 7
	Symposium n° 2 "Rheology and rheometry" Organizers : L. CHOPLIN, T. MASUDA, P. MONGE	Symposium n° 3 "Molding technologies" Organizers : H. TAKAHASHI, J. TERRISSE, A.I. ISAYEV
8h30	02-KN1 Rheometry and processing of polymeric systems <u>H.M. Laun</u> ; BASF, FRG	03-KN1 Numerical simulation of injection molding : an integrated approach <u>M.J. Crochet</u> , F. Dupret ; Université Catholique de Louvain, BELGIQUE
9h00	02-01 Quantitative evaluation of extrudate swell from viscoelastic properties of polystyrene <u>J. Guillet</u> , M. Serai ; Université de St-Etienne, FRANCE	03-01 Injection molding of long-fiber reinforced thermoplastics <u>B. Schmid</u> , H.G. Fritz ; University of Stuttgart, F.R.G.
9h20	02-02 Theory and practice of understanding extrudate swell for linear polyethylene <u>R.J. Koopmans</u> ; Dow Benelux, THE NETHERLANDS	03-02 Non-homogeneous flow field effects in the injection molding of fiber suspensions <u>R. Shanker</u> , J.W. Gillespie, S.I. Güçeri ; University of Delaware, USA
9h40	02-03 Rheological studies on fluids for fibre spinning production <u>W.M. Kulicke</u> , J. de Buhr ; Universität Hamburg, FRG	03-03 Fiber orientation in the fountain flow : theoretical and experimental results R.S. Bay, <u>C.L. Tucker III</u> ; University of Illinois, USA
10h00	BREAK	
10h20	02-04 Observation and analysis of flow instability by a parallel-plate rheometer S. Hashizume, <u>T. Masuda</u> * ; Kobe Steel and *Kyoto University, JAPAN	03-04 Injection molding of rubber compounds : experimentation and simulation <u>A.I. Isayev</u> , J.S. Deng ; University of Akron, USA
10h40	02-05 Polymer melts at interfaces : rheometry and geometry effects A. Benallal, G. Marin, J.P. Montfort, <u>Ph. Monge</u> ; Université de Pau, FRANCE	03-05 Simulation and verification of filling and post-filling stages of the injection-molding process <u>H.H. Chiang</u> *, C.A. Hieber, V.W. Wang*, K.K. Wang ; Cornell University and *CAE Technology, USA
11h00	02-06 Rheology of high internal phase emulsions <u>G. Akay</u> ; Unilever, U.K.	03-06 Visualization of flow and solidification of polymer melt in injection molding processes - Comparisons of visualized results with numerical ones obtained by a rheological approach <u>Y. Kurosaki</u> , I. Satoh, K. Ishii* ; Tokyo Institute of Technology and *Nikon, JAPAN
11h20	02-07 Modeling of flowing immiscible polymer systems <u>H. Takahashi</u> , A. Koivai, Y. Inoue, O. Kamigaito ; Toyota, JAPAN	03-07 Crystallization and its effects during injection molding C. Dufosse, D. Lalart*, A. Tournaire*, J.M. Haudin, <u>B. Monasse</u> ; Ecole des Mines de Paris and *ORKEM, FRANCE
11h40	02-08 The effect of molecular parameters on the rheology of adhesives <u>G. Marin</u> , P. Vandermaesen ; Université de Pau, FRANCE	03-08 A second order theory for mould filling simulations <u>A. Poitou</u> ; ENS Cachan, FRANCE
12h00	LUNCH	

APRIL 20, MORNING SESSION

	ROOM 9	ROOM 13
	Symposium n° 4 "Plastics and rubber extrusion" Organizers : C. RAUWENDAAL, W. MICHAELI, T. SAKAI	Symposium n° 7 "Polymers blends" Organizers : M. LAMBLA, L.A. GOETTLER
8h30	04-KN1 Experimental study on the comparison of various kinds of twin screw extruder characteristics T. Sakai, N. Hashimoto ; Japan Steel Works, JAPAN	07-KN1 Design of acrylic copolymers for miscible blends with polycarbonate by melt processing M. Nishimoto, H. Keskkula, D.R. Paul ; University of Texas, USA
9h00	04-01 Numerical simulation on the entry flow of polymer melts T. Kajiwara, Y. Kuwana, S. Ninomiya*, K. Funatsu ; Kyushu University and *Japan Steel Works, JAPAN	07-01 Viscosity changes and morphology development during the reactive and non-reactive blending of an amorphous nylon and EP rubber C.E. Scott, C. W. Macosko ; University of Minnesota, USA
9h20	04-02 Optimization of dies and computation of swelling in extrusion processes by using the stream tube analysis P. Andre, J.R. Clermont, M.E. de la Lande ; Institut de Mécanique de Grenoble, FRANCE	07-02 Effect of mixing conditions on morphology and rheology of PC/PBT blends X. Kong, L. Chaplin, A. Aiji ; Université Laval, CANADA
9h40	04-03 Slip phenomena in stress controlled and in flow controlled extrusion. Influence of fluid compressibility N. El Kissi, J.M. Piau ; Institut de Mécanique de Grenoble, FRANCE	07-03 The effect of processing conditions on the morphology and properties of poly(vinyl chloride) blends R. Mikkonen, J. Junnila, A. Savolainen ; Tampere University of Technology, FINLAND
10h00	BREAK	
10h20	04-04 Thermo-viscous effects in extrusion of power-law liquids with solidification A.N. Alexandrou ; Worcester Polytechnic Institute, USA	07-04 Tailoring melt flow and surface properties of polymers by blending Ph. Teyssié, R. Fayt, S. Petitjean and J. Schrijnemackers ; University of Liège, BELGIUM
10h40	04-05 Pressure and throughput characteristics of tightly intermeshing co-rotating twin screw extruders (ZSK) H. Potente, J. Ansahl, R. Wittemeier ; University of Paderborn, FRG	07-05 Specific interactions and the thermal stability of polyolefin compounds A. Fetoui, H.P. Schreiber ; Ecole Polytechnique de Montréal, CANADA
11h00	04-06 Flow in kneading discs of twin screw extruders. Simplified model and experimental validation L. Le Blanc, J. Tayeb* ; Rhône Poulenc and *INRA, FRANCE	07-06 A high-temperature polymer blend : aramid/poly(ether sulfone) M. Matsuura, S. Nakata, Y. Imai, H. Saito, T. Inoue ; Tokyo Institute of Technology, JAPAN
11h20	04-07 Flow modeling in pin barrel screw extruders and list kneaders J.L. White, R. Brzaskowski, T. Kumazawa ; University of Akron, USA	07-07 Rheological response of polyamide/polypropylene blends ; solid state and melt behavior L.A. Utracki, P. Sammut ; IMRI NRCC, CANADA
11h40	04-08 On the modelling of continuous mixers : the buss co-kneader P.H.M. Elemans, H.E.H. Meijer* ; DSM Research BV and *Eindhoven University of Technology, THE NETHERLANDS	07-08 Microstructure of iPP-PA12 blends studied by dynamic mechanical measurements J. Varlet, J.Y. Cavallé, J. Perez, B. Echalié* ; INSA and *Atochem, FRANCE
12h00	LUNCH	

APRIL 20, AFTERNOON SESSION

	RISSO 6	RISSO 7
	Symposium n° 2 (continued) "Rheology and rheometry" Organizers : L. CHOPLIN, T. MASUDA, P. MONGE	Symposium n° 3 (continued) "Molding technologies" Organizers : H. TAKAHASHI, J. TERRISSE, A.I. ISAYEV
13h30	02-KN2 Rheological models for polymer systems <u>P.J. Carreau</u> ; Ecole Polytechnique de Montréal, CANADA	03-KN2 Advanced modeling techniques for transient free surface problems <u>H.P. Wang</u> , H.S. Lee ; General Electric, USA
14h00	02-09 Relaxation time distribution from an analytical method. Influence of the molecular parameters <u>R. Fulchiron</u> , V. Verney, A. Michel ; LMO-CNRS, FRANCE	03-09 Studies of knit lines in reaction injection molding <u>C. Maier</u> , A.N. Hrymak, P.E. Wood ; McMaster University, CANADA
14h20	02-10 Determination of molecular mass distribution from dynamic measurements of polymer melts <u>M. Fleissner</u> , Hoechst, FRG	03-10 RIM mold filling studies : comparison of theory and experiments <u>M.A. Garcia</u> , C.W. Macosko, N.P. Vespoli*, C.C. Marken* ; University of Minnesota and *Dow Chemical, USA
14h40	02-11 Mean relaxation times from steady and transient shear flows <u>P. Attané</u> ; Institut de Mécanique de Grenoble, FRANCE	03-11 Fountain flow effects during mould filling in RIM <u>R.E. Hayes*</u> , P.A. Tanguy ; Université Laval and *University of Alberta, CANADA
15h00	02-12 Chain entanglement and short-range order in copolymers and miscible blends <u>S. Wu</u> , R. Beckerbauer ; Du Pont de Nemours, USA	03-12 A R-rim material for automotive bodies reinforced with a mixture of potassium titanate whisker and mica flake T. Tanaka, <u>Y. Sagawa</u> ; Kanto Auto Works, JAPAN
15h20	02-13 The dynamics of interacting semi-flexible macromolecules <u>T. Aubry</u> , P. Navard, M. Grmela* ; Ecole des Mines, FRANCE and *Ecole Polytechnique de Montréal, CANADA	03-13 Simulation of temperature distribution in injection molding by a heat analytical system integrated with flow analysis <u>H. Nagahama</u> , Y. Okada, A. Kawasaki ; Sekisui Chemical, JAPAN
15h40	BREAK	
16h00	02-14 Rheological and morphological behaviour of fibre filled polymer melts at low shear rates <u>T. Kitano</u> , C. Klason*, J. Kubat* ; Research Institute for Polymers & Textiles, JAPAN and *Chalmers University of Technology, SWEDEN	03-14 Density distributions in quenched and injection-molded amorphous specimens <u>R. Wimberger-Friedl</u> ; Philips Research Laboratories, THE NETHERLANDS
16h20	02-15 Isothermal rheological characterization of glass mat reinforced thermoplastics S.M. Davis, <u>K.P. Mc Alea</u> ; General Electric, USA	03-15 Thermal stresses computation in thermoplastic molded components <u>O. Denizart</u> , M. Vincent, J.F. Agassant ; Ecole des Mines, FRANCE
16h40	02-16 Linear and non-linear viscoelastic properties of rubber-particle filled polymer melts <u>T. Takiyawa</u> , T. Asami, T. Masuda ; Kyoto University, JAPAN	03-16 Warpage effects and their elimination in rotational molding <u>J.L. White</u> , C. H. Chen, Y. Ohta ; University of Akron, USA
17h00	02-17 Regulation of filled polyvinylchloride flowability by acrylic oligomers <u>L.I. Myasnikova</u> , D.N. Yemelyanov, A.S. Marinin ; Lobachevsky State University, USSR	03-17 Prediction of optimum process conditions for rotomoulded products <u>R.J. Crawford</u> , P. Nugent, Wang Xin ; Queens University, N. IRELAND
17h20	02-18 Melt rheological study of PVC and chemically modified PVC : influence of the microstructure <u>V. Verney</u> , M. Sahraoui, A. Michel ; LMO-CNRS, FRANCE	03-18 Multi-process conversion technology - A new process technique to mold large complex parts <u>J. A. Avery</u> ; General Electric, USA
17h40	02-19 Some studies on the viscoelastic behavior of filled thermoplastics under combined load <u>C. Schmauch</u> ; Deutsches Kunststoff-Institut, FRG	03-19 Transistor packaging technology in thermoplastic compounds <u>M. Adachi</u> , H. Sakai*, M. Togami*, K. Suzuki** ; Toshiba, *Polyplastics and **Nishiki Research, JAPAN

APRIL 20, AFTERNOON SESSION

	ROOM 9	ROOM 13
	Symposium n° 4 (continued) "Plastics and rubber extrusion" Organizers : C. RAUWENDAAL, W. MICHAELI, T. SAKAI	Symposium n° 7 (continued) "Polymers blends" Organizers : M. LAMBLA, L.A. GOETTLER
13h30	04-KN2 Computer simulation of single-screw extruders P.G. Lafleur, K. Amellal ; Ecole Polytechnique de Montréal, CANADA	07-KN2 Interfacial activity of block copolymers : Equilibrium and kinetic aspects L. Leibler, C. Ligoure ; ESPCI, FRANCE
14h00	04-09 Isothermal model of the grooved feed zone of single-screw-extruders based on visual analysis of the kinematics E. Grün Schloss ; University of Stuttgart, FRG	07-09 Studies on nylon -6/ LDPE alloys A. Misra, R.A. Kumar ; Indian Institute of Technology, INDIA
14h20	04-10 Improvements in screw design for single screw extruders with special regards to the feed zone B. Schroeter ; Reifenhäuser Company, FRG	07-10 On-line dynamic rheological measurements on compatibilised impact modifier/PA66 blends D. Lefebvre, J.P. Prevost ; Rhône-Poulenc, FRANCE
14h40	04-11 Theoretical principles of the design of barrier screws in extruders H. Potente, H. Stenzel ; University of Paderborn, FRG	07-11 Compatibilizing effect of block copolymers. I. MPPO, SAN and Poly(styrene-B-methyl methacrylate) system W.H. Jo, H.C. Kim, D.H. Baik ; Seoul National University, KOREA
15h00	04-12 Pertinent rubber extrusion experiments with an instrumented extruder J.L. Leblanc ; Montedison, BELGIUM	07-12 LCP/PEI-Blends : properties-morphology-processing W. Pfandl, L. Yin ; Siemens, FRG
15h20	04-13 Investigation of the influence of shear viscosity of a rubber compound on the pressure and temperature profiles in a screw channel of an extruder R. Badura, H.J. Laake, S. Wiegrefe ; Institut für Kautschuktechnologie, FRG	07-13 Manufacturing and properties of polymer blends made of thermoplastics and liquid crystal polymers Th. Brinkmann, P. Heidemeyer, W. Michaeli ; IKV, FRG
15h40	BREAK	
16h00	04-14 Study of rubber compound extrusion through profile dies S. d'Halewyn, B. Vergnes, J.F. Agassant ; Ecole des Mines, FRANCE	07-14 Morphology/property relationships for co-continuous immiscible polycarbonate/styrenic copolymer blend systems M.J. Guest, L.M. Aerts, D. Quintens*, G. Groeninckx* ; Dow Benelux, THE NETHERLANDS and *K.U. Leuven, BELGIUM
16h20	04-15 Analysis of the preform of large aspect ratio dies for extrusion of polymer melts and rubber compounds with three-dimensional finite element methods Y. Wang ; Tunghai University, TAIWAN, CHINA	07-15 Control of structure and morphology of segmented polyurethanes L. Cuvé, J.P. Pascault, G. Boiteux*, G. Seytre* ; INSA and *Université de Lyon, FRANCE
16h40	04-16 Die Design using control volumes J. Vlcek***, J. Perdikoulis*, C. Tzoganakis**, J. Vlachopoulos ; McMaster University, *Brampton Engineering, **Dupont Research Center, CANADA and ***Vugpt, CZECHOSLOVAKIA	07-16 Rheological properties of two-phase blends of poly-methylmethacrylate with polybutylacrylate and their copolymers D.N. Yemelyanov, V.A. Izvazhikova, V.A. Myachev, I.N. Razinskaya ; N.I.Lobachevsky State University, USSR
17h00	04-17 Dynamic simulation of melt extruders A. Roedig, H.G. Fritz ; University of Stuttgart, FRG	07-17 Studies on semi-crystalline polymer blends of POM/CO-PA and POM/PA-12 Q. Cai, Q. Hu* ; Heifei University and* Shanghai solvents Factory, PRC
17h20	04-18 Study on the melting performance in a single screw extruder L.Q. Chen, F.H. Zhu* ; East China University of Chemical Technology and *Beijing Institute of Chemical Technology, PRC	07-18 Modification and its mechanism of PP/EPDM toughening system by dynamical vulcanization H. Zhang, Z. Pan, Y. Zhou, H. Liu*, S. Ying ; East China University and *Yichang Resin Factory, PRC
17h40	04-19 A study on the dispersive melting mechanism of polymers in an extruder P. Yucheng, H. Hanxiong ; South China University of Technology, PRC	07-19 Dynamic vulcanization for TPU/NBR blend T. Tang, C.P. Hu, S.K. Ying, Y.X. Zhang* ; East China University and *Jiao Tong University, PRC

POSTER SESSION

13:00 - 14:30

Even numbers
Odd numbers

(ex : P01-04, P08-12 etc...) on Wednesday
(ex : P01-03, P08-07 etc...) on Thursday

Symposium n° 9 "Polymeric composites"

P09-01 Simulation of resin transfer mold filling C.A. Fracchia, <u>C.L. Tucker III</u> ; University of Illinois, USA	P09-02 Non isothermal stamping of long glass fibers reinforced sheets, theory and experiments R. Ducloux, A. Poitou*, J.F. Agassant, M. Vincent ; Ecole des Mines and *ENS Cachan, FRANCE	P09-03 Simulation of compression molding with slip on interface for polymeric composites E.G. Kim, S.H. Jang, D.G. Lee, H. Hojo* ; Kookmin University, KOREA and *Tohoku University, JAPAN
P09-04 An anisotropic flow formulation for modeling and characterization of polymeric composites under compression molding J. Kim, Y.C. Shiao, <u>L. James Lee</u> , Y.T. Im ; Ohio State University, USA	P09-05 Mechanical properties of asbestos fibres polyethylene composites <u>L. Campagna</u> , D. De Kee, P.J. Carreau* ; University of Sherbrooke and Ecole Polytechnique de Montréal, CANADA	P09-06 Properties and fracture morphologies of carbon fiber reinforced polysulfone composites <u>R. Jin</u> *, P. Eyerer ; University of Stuttgart, FRG and *Hefei University of Technology, PRC
P09-07 A study on inner stress in polystyrene filled with plasma-treated mica <u>X. Gong</u> , Y. Huang, W. Zhang* ; Guangzhou Institute of Chemistry and *Northwestern Polytechnical University, PRC	P09-08 Permeability of reinforcement materials for RTM <u>B.R. Gebart</u> , L.A. Strömbeck, C.Y. Lundemo ; Swedish Institute of Composites, SWEDEN	P09-09 A microrheological study of fiber suspensions <u>G. de Bonhome</u> , <u>T. de Brouwer</u> , R. Keunings, C. Peiti*, J.F. Agassant*, M. Vincent* ; Université Catholique de Louvain, BELGIQUE and *Ecole des Mines, FRANCE

Symposium n° 10 "Liquid crystalline polymers"

P10-01 Liquid-crystalline, hydrogen-bonded strictly alternating poly(esteramides) - An overview <u>S.M. Aharani</u> ; Allied-Signal, USA	P10-02 Viscoelastic properties of low temperature thermotropic liquid crystalline polymers <u>T. Asada</u> ; Kyoto University, JAPAN	P10-03 Morphology and viscoelastic properties of ethyl cellulose and its blends with ethylvinyl acetate <u>T.M. Malik</u> , M. Dorval, P.J. Carreau, B.D. Favis ; Ecole Polytechnique de Montreal, CANADA
P10-04 Rheological characterization and spinning of liquid crystal semirigid copolyesters <u>F.P. La Mantia</u> , A. Valenza, P.L. Magagnini*, A. Roggero**, <u>U. Pedretti**</u> ; Università di Palermo, *Università di Pisa and **Eniricerche, ITALY	P10-05 Chain modelling in the development of main-chain thermotropic copolyesters D.J. Johnson, I. Karacan, <u>J. G. Tomka</u> ; University of Leeds, UK	P10-06 Properties of extruded liquid crystalline polymers <u>K. Nakayama</u> , M. Kyotani, A. Kaito ; Research Institute for Polymer and Textiles, JAPAN
P10-07 Band textures of liquid crystalline polymers in elongational flow <u>E. Peuvrel</u> , P. Navard ; Ecole des Mines, FRANCE	P10-08 Injection moulding of a thermotropic polymer <u>J.N. Baleo</u> , P. Navard, M. Vincent ; Ecole des Mines, FRANCE	P10-09 Injection mold flashing of liquid crystalline polymers <u>K. F. Wissbrun</u> ; Hoechst, USA
P10-10 Melts of self-ordering monomers and polymers in contact with fiber surfaces <u>S.I. Stupp</u> , S. Bhamu ; University of Illinois, USA	P10-11 Phase segregation in thermotropic main-chain and side-chain liquid crystalline polymers <u>E. Chiellini</u> , G. Galli, M. Laus*, A.S. Angeloni*, D. Caretti* ; Università di Pisa and Università di Bologna, ITALY	P10-12 F.T.I.R Photoacoustic study of an injection molded liquid crystalline polymer O. Barres*, B. Jasse, <u>C. Noel</u> ; ESPCI and *Nicolet Instrument, FRANCE
P10-13 Small angle neutron scattering from shear flowing mesomorphic polymer <u>F. Fried</u> , P. Sixou, I. Russig*, J. Dedier*, CNRS, Nice and *Université de Bordeaux, FRANCE	P10-14 Biphasic separation in liquid crystal polymer <u>F. Faubert</u> , J.M. Gilli, P. Sixou, CNRS, Nice, FRANCE	P10-15 Segregation processes in main-chain nematic polyesters as studied by SANS <u>F. Fried</u> , Y. Lansac, P. Sixou, A. Blumstein*, CNRS, Nice, FRANCE and *University of Lowell, USA

POSTER SESSION

13:00 - 14:30

Even numbers
Odd numbers

(ex : P01-04, P08-12 etc...) on Wednesday
(ex : P01-03, P08-07 etc...) on Thursday

Symposium n° 7 "Polymers blends"

P07-01 The influence of electric field on the microscopic structure of PEO/PMMA blends <u>T. Sterzynski*</u> , J. Garbacz; Poznan University, POLAND and *Ecole d'Application des Hauts Polymères, FRANCE	P07-02 Compatibilizing effect of P(MMA-MAA)/PEO intermacromolecular complex through hydrogen bonding <u>Xi Xu</u> , Qi. Wang; Chengdu University of Science, PRC	P07-03 Injection moulding of dry polyamide-rubber blends A.J. Oostenbrink, <u>R.J. Gaymans</u> , L.J. Molenaar; University of Twente, THE NETHERLANDS
P07-04 An approach to evaluation of mixing methods for polymer blends <u>Z. Dobkowski</u> ; Industrial Chemistry Research Institute, POLAND	P07-05 Effect of some ingredients on the impact polystyrene morphology and stability <u>D.D. Kechajov</u> ; Petroleum Research Institute, BULGARIA	P07-06 Modification of binary polyolefin blends with thermoplastic elastomers <u>V. Musil</u> , B. Zerjal, T. Malavasic*, B. Cerić; University of Maribor and *Chemical Institute Boris Kidric, YUGOSLAVIA
P07-07 Studies on morphology, mechanical, and rheological properties of blends of polycarbonate-high density polyethylene <u>N. Mekhilef</u> , A. Ait Kadi, A. Ajji; Université Laval, CANADA	P07-08 Investigation on the morphology and properties of poly(vinyl chloride)/acrylic elastomer blends <u>B.H. Chang</u> , G.J. Hao, M.D. Song, J.W. Zheng, J.J. Chen; Nankai University, PRC	P07-09 Structure and mechanical properties of PE/PP blend films thermally treated in various conditions <u>I. Daniewska</u> , H. Latour-Slowikowska*, A. Wasiak**, S. Lajc***; Technical University of Warsaw, *Research Electrotechnical Institute, **Polish Academy of Sciences and ***Research and Development Center of Refinery Industry, POLAND
P07-10 Morphology, crystallization and properties of polypropylene and polyurethane blends <u>B. Liang</u> , C. Dai, Q. Yu, X. Yun; China Textile University, PRC	P07-11 Effect of compatibilizer on PC/PS blends <u>Q. Cai</u> , W. Zou; Hefei University of Technology, PRC, FRG	P07-12 HNBR/Polyzincmethacrylate alloys <u>Y. Saito</u> , K. Nishimura, J. Takano, T. Sato, M. Asada; Nippon Zeon, JAPAN
P07-13 Photodegradability of polyethylene blends <u>S.H. Hamid</u> , A.G. Moadhah, M.B. Amin, J.H. Khan; King Fahd University of Petroleum and Minerals, SAUDI ARABIA	P07-14 Ultrasonic and rheological investigations of interacting polymer blends <u>R.P. Singh</u> and R. Paladhi; Indian Institute of Technology, INDIA	P07-15 Properties of poly (vinyl chloride) modified with ethylene-propylene terpolymer and coupling agent <u>J. Wu</u> , K.B. Li, S.J. Li; East China University of Chemical Technology, P.R.C.
P07-16 Polyamide rubber blends with ultrafine particules : processing and properties A.J. Oostenbrink, <u>R.J. Gaymans</u> , L.J. Molenaar; University of Twente, THE NETHERLANDS	P07-17 Acrylic-copolymers : from reactive processing to high value added blends - Part II <u>J. Zahr</u> , D. Leblanc, L.C. Sederel; Rohm and Haas, FRANCE	P07-18 Nucleation mechanisms in mesomorphic blends <u>S. Ambrosino</u> , A. Ten Bosch, Y. Lansac, P. Sixou, CNRS, Nice, FRANCE

Symposium n° 8 "Mixing and compounding"

P08-01 Mixing in twin screw extruders under starve-fed conditions <u>D. Bigio</u> , M. Wigginton; University of Maryland, USA	P08-02 Devolatilization of polymer melts : visualization and separation experiments on a specially designed research apparatus S. Dey, <u>J.A. Biensenberger</u> , P. Wang; Stevens Institute of Technology, USA	P08-03 Toughening mechanism of multi-phase polymeric materials <u>Y. Suetsugu</u> ; Idemitsu Petrochemical, JAPAN
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POSTER SESSION

13:00 - 14:30

Even numbers

(ex : P01-04, P08-12 etc...) on Wednesday

Odd numbers

(ex : P01-03, P08-07 etc...) on Thursday

Symposium n° 5 "Fibers and films"

P05-01 Rheological and morphological consequences of oriented crystallization in melt spinning P. Desai, S. Damodaran, G. Bhat, U.S. Agarwal, <u>A.S. Abhiraman</u> ; Georgia Institute of Technology, USA	P05-02 Rheology of polymerization production of spinning solutions based on acrylonitrile copolymers D. N. Yemelyanov, I.A. Barsukov, R. A. Kamskii; Lobachevsky State University, USSR	P05-03 Crystallization of oriented PET yarn. Part I : spontaneous extension of oriented PET yarn in crystallization <u>X. Hu</u> , G. Qiao, Y. Bao, L. Song; China Textile University, PRC
P05-04 The study on the formation of β crystalline form isotactic polypropylene fiber C. Xi, W.Yimin, W. Zongquan, W. Xiaozhen; China Textile University, PRC	P05-05 Guide to the selection of a polymer filtration system C. Morland, B. Mitchell, <u>S. Vandendijk</u> *; PTI Technologie, USA and *Southwest Screens & Filters, BELGIUM	P05-06 A model of film casting flow <u>S. Kase</u> ; Kyoto Institute of Technology, JAPAN
P05-07 A fundamental study of two-step biaxial stretching of polypropylene films P. Duffo, B. Monasse, J.M. Haudin; Ecole des Mines, FRANCE		

Symposium n° 6 "Structure development in processing"

P06-01 The macromolecular orientation in the flow of molten polyethylene T. Sterzynski, R. Sikora*, Ecole d'Application de Hauts Polymères, FRANCE and *University of Lublin, POLAND	P06-02 Anisotropy and crystal growth increase induced by melt shearing of polyethylene <u>B. Monasse</u> , C. Fryda; Ecole des Mines, FRANCE	P06-03 Non isothermal crystallisation and prediction of crystallinity profiles in blow moulded HDPE <u>O. Hande</u> , L.H. Evensen*; Senter for Industriforskning and *Statoil, NORWAY
P06-04 High-resolution TEM studies on poly(aryl-ether-ether-ketone) (PEEK) H. Kawamura*, M. Tsuji, A. Kawaguchi, K. Katayama; Kyoto University and *Tokuyama Soda, JAPAN	P06-05 A study on morphology and fibrillar orientation of injection molded high density polyethylene Weiyu Mao, Zhimin Xie, <u>Xi Xu</u> ; Chengdu University, PRC	P06-06 The interaction of rubber content and molding parameters on the recoverable strain and physical properties of polystyrene H. Devanathan, <u>G.A. Campbell</u> ; Clarkson University, USA
P06-07 Modification and microstructure development in polymers by extremely high shear rate / high pressure processing <u>H. Takahashi</u> , T. Matsuoka, T. Ohta, K. Fukumori, T. Kurauchi, O. Kamigaito; Toyota Central Research, JAPAN	P06-08 Morphology and mechanical properties of rolltruded propylene-ethylene block copolymers C.C. Lin, H. Satake*, M. Kojima, J.H. Magill; University of Pittsburgh, USA and *Chisso Corporation, JAPAN	P06-09 The structure and properties of thermoplastic/thermotropic polymer blends <u>D. Beery</u> , S. Kenig, A. Siegmans; Technion, ISRAEL
P06-10 Morphological changes in segmented polyurethane under thermal treatment V. Rek, E. Govorcin, M. Sureska; University of Zagreb, YUGOSLAVIA	P06-11 A new method for surface modification of segmented polyurethanes <u>Chunhua Li</u> , Xanxin Zhou, Tong Sun; China Textile University, PRC	P06-12 A new criterion for the characterization of microphase separation : the microphase separation structure of tertiary amine containing polyurethanes <u>Dajun Chen</u> , Hanxin Zhou, Tong Sun; China Textile University, PRC
P06-13 Molecular orientation in injection moulded polystyrene products ; its dependency on various injection moulding process parameters <u>G. Nijman</u> ; Vredestein Research Departement, THE NETHERLANDS		

POSTER SESSION

13:00 - 14:30

Even numbers
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(ex : P01-04, P08-12 etc...) on Wednesday
(ex : P01-03, P08-07 etc...) on Thursday

Symposium n° 3 "Molding technologies"

P03-01 ABC flow : a 2D programm for filling simulation interfaced with a computer aided design system <u>D. Lebouvier</u> , P. Lerebours, G. Dehay ; Atochem, FRANCE	P03-02 Finite Element method in injection molding <u>A. Veith-Willier</u> ; University of Stuttgart, FRG	P03-03 C-Cool : a CAE tool for the design of cooling system in injection molding <u>K. Himasekhar</u> , <u>K.K. Wang*</u> ; Advanced CAE Technology and *Cornell University, USA
P03-04 Numerical simulation of mold filling for thermoplastic injection <u>J.L. Willien</u> , J.F. Agassant, M. Vincent ; Ecole des Mines, FRANCE	P03-05 Modelling of the injection moulding process <u>L.F.A. Douven</u> , Eindhoven University of Technology, THE NETHERLANDS	P03-06 Multicomponent injection Moulding <u>H.E.H. Meijer</u> , G.W. M. Peters ; Eindhoven University of Technology, THE NETHERLANDS
P03-07 Shrinkage behavior during injection molding process of aspherical plastic lens for projection TV <u>M. Muranaka</u> , K. Wada, Y. Noro, M. Takagi, M. Takeshita ; Hitachi, JAPAN	P03-08 Analysis and prevision of warpage of injected parts in thermoplastics P. Delbarre, F. Rietsch*, <u>J. Pabiot</u> ; Ecole des Mines de Douai and *Université de Lille, FRANCE	P03-09 The effect of molding conditions on the properties of mineral filled PP <u>U.M. Jaakkola</u> , P.K. Järvelä ; Tampere University of Technology, FINLAND
P03-10 Solution of the inverse thermoforming problem using finite element simulation <u>H.F. Nied</u> , H.G. de Lorenzi ; General Electric, USA		

Symposium n° 4 "Plastics and rubber extrusion"

P04-01 Wall slip phenomena and sharkskin defects in polyethylene melt flows <u>P. Beaufils</u> , B. Vergnes*, J.F. Agassant* ; Orkem and *Ecole des Mines, FRANCE	P04-02 Thermoplastics rheological properties and die design <u>J.A. Covas</u> , O.S. Carneiro ; Universidade do Minho, PORTUGAL	P04-03 Extrusion of short glass fiber reinforced thermoplastic in pipe die <u>G. Ausias</u> , M. Vincent, J.F. Agassant ; Ecole des Mines, FRANCE
P04-04 Multilayer coextrusion of polymer melts : some simulation considerations <u>E. Mitsoulis</u> , X.L. Luo, A. Hannachi, University of Ottawa, CANADA	P04-05 Modelling of multilayer coextrusion flows <u>S. Puissant</u> , B. Vergnes, Y. Demay*, J.F. Agassant, B. Labaig**, B. Gourdon** ; Ecole des Mines and * Université de Nice and **Atochem, FRANCE	P04-06 Thermal model of polymer coating of a metallic tube Y. Ulcer, <u>P. Duffo</u> , J.J. Labaig*, B. Gourdon*, J.M. Haudin, B. Monasse ; Ecole des Mines de Paris and Atochem, FRANCE
P04-07 Study of the flow of rubber compounds in axisymmetrical contractions <u>P. Mourniac</u> , B. Vergnes, J.F. Agassant ; Ecole des Mines, FRANCE	P04-08 Computational modeling of the axial force of the solids conveying zone in extruders <u>M.L. Cheng</u> , S.S. Liu, F.H. Zhu* ; Jiangsu Institute of Chemical Technology and *Beijing Institute of Chemical Technology, PRC	P04-09 Temperature development in single screw extruders H. Potente, <u>H. Schulte</u> ; University of Paderborn, FRG
P04-10 A fundamental study of vent extruder Peng Yucheng, Zhao Lubin, Guang Huibing, Chen Ziyun ; South China University of Technology, PRC	P04-11 Residence distribution time in a screw extruder : correlation between the RTD of screw and that of die <u>L.Q. Chen</u> , Z.Q. Pan ; East China University of Chemical Technology, PRC	P04-12 Mathematical model of thermoplastics single-screw extrusion <u>K. Wilszynski</u> ; Warsaw University of Technology, POLAND
P04-13 Frequency analysis of pressure fluctuations in a single-screw extruder <u>P. Saha*</u> , J. Becker, C. Klason, J. Kubat ; Chalmers University of Technology, SWEDEN and *Faculty of Technology, CZECHOSLOVAKIA	P04-14 A model describing the interaction between feeding zone, metering zone and die of counter-rotating twin-screw extruders <u>B. Poltersdorf</u> , L. Fiedler ; Technical University Leuna-Merseburg, GDR	P04-15 Experimental and theoretical study of an intermeshing corotating twin screw extruder <u>I. Noé</u> , B. Vergnes, J.F. Agassant ; Ecole des Mines, FRANCE

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13:00 - 14:30

Even numbers
Odd numbers

(ex : P01-04, P08-12 etc...) on Wednesday
(ex : P01-03, P08-07 etc...) on Thursday

Symposium n° 1 "Polymerization and reactive processing"

P01-01 Influence of thioether bond on photo-induced polymerization of dimethacrylates <u>E. Andrzejewska</u> ; Poznan Techn. University, POLAND	P01-02 Dynamic scheme of the polymerization of caprolactam in a continuous reactor - VK column <u>Z.L. Tang</u> , N.X.Huang ; China Textile University, PRC	P01-03 Involvement of glycidyls in the development of a polyurethane semipermeable membrane M. Bezdadea, S. Oprea, <u>A. Savin</u> ; Faculty of Jassy, ROMANIA
P01-04 Investigation of copolymerization process in styrene-divinylbenzene system using hydrophilizing agent <u>G.K. Saldadze</u> , N.B. Galitskaya ; Research Institute for Plastics, USSR	P01-05 Structuring on molecular level in the mould as a batch reactor <u>I. Catic</u> , D. Marincel ; University of Zagreb, YUGOSLAVIA	P01-06 Mathematical model of reactive extrusion processing <u>D. Padliya</u> , D. Patel* ; Polysar, CANADA and *Raychem, USA
P01-07 Melt grafting of a secondary amino methacrylate onto polyethylene <u>W.E. Baker</u> , Z. Song ; Queen's University, CANADA	P01-08 Investigation of the alcoholysis of EVA copolymers with butanol in a twin-screw extruder <u>K.H. Freitag</u> , A. Hesse, M. Rätzsch ; Institute für Technologie der Polymer, GDR	P01-09 Mould filling during the application of coatings by reaction injection moulding <u>V.P. Beghishev</u> , Yu.V. Lavachnik, A. Ya Malkin* ; Academy of Sciences and *Research Institute of Plastics, USSR
P01-10 Acrylic-copolymers : from reactive processing to high value added blends - Part I <u>D. Leblanc</u> , L.C. Sederel ; Rohm and Haas, FRANCE		

Symposium n° 2 "Rheology and rheometry"

P02-01 A numerical study of bubble growth in polymeric foams A. Arefmanesh, E.E. Michaelides, <u>S.G. Advani</u> ; University of Delaware, USA	P02-02 Numerical simulation on die swell of polymer melts <u>T. Kajiwara</u> , Y. Ohtake, K. Funatsu ; Kyushu University, JAPAN	P02-03 A study of melt fracture B.J. Fritz, L. Schwallier, <u>W.A. Taylor</u> ; Rohm and Haas, USA
P02-04 Mechanical degradation of macromolecules in flows of polymeric liquids <u>A.L. Yarin</u> ; Academy of Science, USSR	P02-05 Flow behaviour of aqueous lyotropic biopolymers <u>W.M. Kulicke</u> , R. Oertel, K. Grosskopf ; Universität Hamburg, FRG	P02-06 Structure formation in aqueous solutions of cellulose ethers <u>L.I. Myasnikova</u> , N.V. Ryabokon, M.V. Prokof'yeva* ; Lobachevsky State University and * NPO "Polimersintez", USSR
P02-07 Correlation between crystallization and rheological behaviour of a polyester PET <u>Ph. Dumazet</u> , B. Chabert, A. Douillard, J. Guillet*, A. Gerard** ; UCBL, *Université de St Etienne and **PSA, FRANCE	P02-08 An empirical relation between molecular weight distribution and frequency loss angle variations in polymer melt viscoelasticity <u>V. Verney</u> ; LMO-CNRS, FRANCE	P02-09 Rotary viscometer with the pressure-tight measuring unit <u>R.A. Kamsky</u> , D.N. Yemelyanov ; Lobachevsky State University, USSR
P02-10 Polyelectrolyte effect in perfluorinated ionomers from viscosity measurements <u>P. Aldebert</u> , M. Pinéri ; CENG, FRANCE	P02-11 Improve processability of linear low density polyethylenes through the use of fluorocarbon elastomer/polyethylene glycol blends <u>M.L. Guilhem</u> ; 3 M, FRANCE	

POSTER SESSION

13:00 - 14:30

Even numbers

Odd numbers

(ex : P01-04, P08-12 etc...) on Wednesday

(ex : P01-03, P08-07 etc...) on Thursday

Symposium n° 11

"Solid state processing and other innovative technologies"

P11-01 Numerical simulation of polymer forging. How to determine the rheological coefficients ? T. Valla, <u>J.M. Haudin</u> , S. Glommeau* ; Ecole des Mines and *Régie Renault, FRANCE	P11-02 Modelisation of the melt spinning of polymeric optical fibers <u>J. Terrisse</u> , T. Rimlinger ; Institut Charles Sadron, FRANCE	P11-03 Development of a new apparatus for measuring P-V-T curves H. Yokoi, Y. Shimatani*, <u>T. Abe</u> **, M. Inoue*** ; University of Tokyo, *Nachi-Fujikoshi, **Idemitsu Petrochemical and ***Shimazu, JAPAN
P11-04 Visualization of three-dimensional flow patterns of injection molding by gate-magnetization method <u>H. Yokoi</u> , S. Kamata ; University of Tokyo, JAPAN		

Symposium n° 12

"Automation process control and sensor technology"

P12-01 Automation in the extrusion technology <u>E. Reiber</u> ; Krauss Maffei, FRG	P12-02 Thickness control for PVC pipe <u>G. Defaye</u> , B. Delfanne*, L. Caralp, J.J. Labaig* ; ENSCP and *Atochem, FRANCE	
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