

Wednesday 8 August 1990

9.00-10.25

Welcome — Dean Vandelinde (*The Johns Hopkins University, USA*)

Introductory Comments — D. R. Ulrich (*AFOSR, USA*)

9.40-10.25 Plenary session I

Ultrathin layers of non-amphiphilic polymers: molecular design, properties and applications

G. Wegner (*Max-Planck-Institut, FRG*)

10.55-12.25 Parallel sessions

Conducting polymers

Structure and morphology of polyphenylene vinylenes
F. E. Karasz (*University of Massachusetts, USA*)

Oriented polyacetylene and polyacetylene-polynorbornene block copolymers: comparison of optical and electrical properties

F. Stelzer and G. Leising (*Technical University Graz, Austria*)

Monomer tailoring to control the redox potentials of conductive polyheterocycles

A. Berlin, G. Pagani, F. Sannicolò, G. Schiavon and G. Zotti (*University of Milan, Italy*)

The effect of solubilizing alkyl side groups on the mechanical and electrical properties of poly(3-alkylthiophenes)

J. Moulton (*University of California, Santa Barbara, USA*)

Mechanical properties of oriented fibers

Mechanical behavior of rigid rod polymer fibers I: measurement of axial compressive and transverse tensile strengths

F. J. McGarry and J. E. Moalli (*Massachusetts Institute of Technology, USA*)

Monitoring the compressive behaviour of single fibres under axial compression

N. Melanitis, C. Vlatts and C. Galiotis (*Queen Mary & Westfield College, UK*)

Characterization of compressive properties of high performance fibres

K. S. Macturk (*The Johns Hopkins University, USA*), R. K. Eby (*The University of Akron, USA*) and W. W. Adams (*Wright Research and Development Center, USA*)

Mechanical properties of polyamides containing reactive diacetylene functionalities

H. W. Beckham and M. F. Rubner (*Massachusetts Institute of Technology, USA*)

2.00-3.30 Parallel sessions

NLO polymers I

Third-order nonlinear optical processes in molecular and polymeric materials

P. N. Prasad (*State University of New York, USA*)

Low dimensional conjugated systems for nonlinear optics: polydiynes

H. Sasabe, Y. Wada, H. Ookawa and A. Yamada (*The Institute of Physical and Chemical Research, Japan*) and A. F. Garito (*University of Pennsylvania, USA*)

The design of new copolymers for $\chi^{(3)}$ applications
C. W. Spangler, T. J. Hall and P.-K. Liu (*Northern Illinois University, USA*) and D. W. Polis, L. S. Sapochak and L. R. Dalton (*University of Southern California, USA*)

Liquid crystalline polymers as electrooptically active media

R. V. Talroze (*M. V. Lomonosov Moscow State University, USSR*)

Highly ordered polymers I

The morphology and ductility of polyethylene reactor powder

L. H. Wang, S. Ottani and R. S. Porter (*University of Massachusetts, USA*)

Oriented fibres and films based on flexible polymers
P. J. Lemstra (*Eindhoven University of Technology, The Netherlands*) and N. Gerrits (*DSM Research, The Netherlands*)

Supermolecular structure of high modulus/strength gel spun/hot drawn PE-fibres

D. Hofmann, D. Geiß and E. Schulz (*Academy of Sciences of the German Democratic Republic, GDR*)

DSC and DMTA analysis of a thermotropic LCP

J. Sarlin and P. Törmälä (*Tampere University of Technology, Finland*)

4.00-5.20 Parallel sessions

Polydiacetylene-conjugated systems

¹³C NMR studies of polydiacetylene

A. E. Tonelli (*AT & T Bell Laboratories, USA*)

Structural changes in polydiacetylene single crystals and monomolecular films induced by oxygen adsorption

B. J. E. Smith and D. N. Batchelder (*Queen Mary & Westfield College, UK*)

Optical nonlinearity in transition metal poly-ynes

P. L. Porter, S. Guha, K. Kang and C. C. Frazier (*Marietta Laboratories, USA*)

Electronic tuning of polydiacetylene backbone: a comparative study

K. N. Babu and S. S. Talwar (*Indian Institute of Technology Powai, India*)

Highly ordered polymers I

Molecular strain in high-modulus polyethylene fibers during stress relaxation studied by Raman microscopy

B. J. Kip, P. J. R. Leblans and R. J. Meier (*DSM Research, The Netherlands*) and M. C. P. Van Eijk (*Eindhoven University of Technology, The Netherlands*)

Structure and morphology of highly oriented, radiation crosslinked polyethylene fibres

P. G. Klein, J. A. G. Orozco and I. M. Ward (*Leeds University, UK*)

Development of order and orientation in acrylic fibres

S. B. Smith and S. J. Law (*Courtaulds Research, UK*)

Structure of oriented high-modulus PE

S. N. Chvalun, Yu. A. Zubov and N. F. Bakeev (*Karpov Institute of Physical Chemistry, USSR*)

Thursday 9 August 1990

9.00-10.00 Plenary session II

Ultimate properties of rigid-rod polymer fibers

W. W. Adams and D. S. Dudis (*Wright Research & Development Center, USA*) and S. G. Wierschke (*USAF Academy, USA*) and J. R. Shoemaker (*AF Institute of Technology, USA*) and P. G. Lenhart (*Vanderbilt University, USA*) and R. K. Eby (*The Johns Hopkins University, USA*) and H. Jiang (*Georgia Institute of Technology, USA*)

Nonlinear optics and random glassy polymers

A. F. Garito (*University of Pennsylvania, USA*)

10.30–12.40 Parallel sessions

NLO polymers II

Electro-optical properties of polymer/(liquid crystal) composite systems

T. Kajiyama (*Kyushu University, Japan*)

Poly(arylene vinylene) polymers for optical device applications

D. D. C. Bradley (*Cavendish Laboratory, UK*)

Rigid-rod derived amorphous polydiacetylenes

M. A. Schen (*NIST, USA*)

Second harmonic generation of derivatives and analogs of benzophenone and chalcone

M. P. Cockerham, E. A. Chauchard, S. Guha and C. C. Frazier (*Martin Marietta Laboratories, USA*)

Synthesis and characterization of nonlinear optical active materials

L. Yu, M. Chen and L. R. Dalton (*University of Southern California, USA*)

Highly ordered polymers II

Oriented conjugated polymers: conducting and stiff high-performance materials

P. Smith (*University of California at Santa Barbara, USA*)

Structure-property relations and processing of rod-like aromatic polyamides

H. W. Schmidt (*University of California at Santa Barbara, USA*)

Evolution of order during the formation of biaxially drawn poly(ethylene terephthalate) film

D. R. Salem (*TRI/Princeton, USA*)

Viscoelastic relaxation in oriented semicrystalline polymers

T. S. Chow and A. C. Vanlaeken (*Xerox Webster Research Center, USA*)

Crystallization of rigid polymers and their acid solvent studied by synchrotron radiation

Y. Cohen (*Technion, Israel*) and S. Buchner and H. G. Zachmann (*University of Hamburg, FRG*) and D. Davidov (*Hebrew University, Israel*) and W. W. Adams (*Wright Research & Development Center, USA*)

Aspects for synthesis, analysis and application of aromatic conjugated polycondensates

A. Greiner and W. Heitz (*Philipps-University Marburg, FRG*)

10.30–12.30 Parallel sessions

General session I

Mechanical behavior of rigid rod polymer fibers II: improvement of compressive strength

F. J. McGarry and J. E. Moalli (*Massachusetts Institute of Technology, USA*)

Micromechanical studies on Kevlar 49/epoxy model composites

C. Vlattas and C. Galiotis (*Queen Mary & Westfield College, UK*)

Thermal stability of polybenzobisazole rigid-rod polymers

L. Denny (*Wright-Patterson AFB, USA*)

Base treatment of polyacrylonitrile for carbonization

I. R. Herbert, Z. Bashir and D. C. Bott (*Courtaulds Research, UK*)

Compressive mechanical properties and retraction behaviour of thermotropic liquid crystalline copolyesters

S. S. Kordestani and A. H. Windle (*University of Cambridge, UK*)

Arylidene polymers XI: synthesis, characterization and electrical conductivity of poly(2,5bis[*m*-nitrobenzylidene]-cyclopentanone) sulfide and theoretical studies, PPP, for its monomeric unit

M. A. Abd-Alla and A. S. El-Shahawy (*Assiut University, Egypt*)

General session II

Shear flow stability of liquid crystal polymers

J. J. Magda, S. G. Baek and K. L. Devries (*University of Utah, USA*) and R. G. Larson (*AT & T Bell Laboratories, USA*)

Formation and characterization of the fibers and films from mesophase solutions of cellulose in the ammonia/ammonium thiocyanate solvent

K. S. Yang (*Chonnam National University, Korea*) and M. H. Theil, Y. S. Chen and J. A. Cuculo (*N. C. State University, USA*)

Electro-optic properties of polyelectrolyte solutions

W. Oppermann (*Technical University Clausthal, FRG*)

Internal electric field in a ferroelectric copolymer

G. T. Davis and A. S. Deroggi (*NIST, USA*) and N. Tsutsumi (*Kyoto Institute of Technology, Japan*)

Structure and dynamics of polyelectrolyte solutions

S. Förster, C. Schnee and M. Schmidt (*Max-Planck-Institut, FRG*)

2.00–4.30 Plenary session IV

The natural sciences in our century

H. Mark (*Polytechnic Institute of New York, USA*)

Rigid rod polymer fibres and composites

R. J. Young (*Manchester Materials Science Centre, UK*)

Low-loss, high-bandwidth GI polymer optical fiber

Y. Koike, E. Nihei and Y. Ohtsuka (*Keio University, Japan*)

Polyimides for thin film packaging applications

G. Czornyj (*IBM, USA*)

Closing remarks — R. K. Eby (*The Johns Hopkins University, USA*)

2.00–5.00 Poster session

Friday 10 August 1990

9.00–10.00 Plenary session III

Development of materials with enhanced optical non-linearity by control of ultrastructure

L. R. Dalton (*University of Southern California, USA*)

High performance polyimide fibers

S. Cheng and F. W. Harris (*University of Akron, USA*)

This scientific programme was correct at the time of going to press. The organizers reserve the right to make any changes which may be necessary.