

RHEOLOGY BULLETIN

Publication of The Society of Rheology, Inc.

Vol. 60 No. 2



July 1991

THE SOCIETY OF RHEOLOGY EXECUTIVE COMMITTEE - 1989-91

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J. M. O'Reilly

63rd ANNUAL MEETING ROCHESTER, NEW YORK OCTOBER 20-24, 1991

The annual meeting of the Society of Rheology will be held at the Holiday Inn-Genesee Plaza in downtown Rochester, NY. The North American Society of Biorheology will hold their annual meeting as an integral part of this meeting. The technical program and abstracts, information on registration and housing, and other items of general interest are enclosed with this mailing. For additional information, contact the meeting organizers.

Rheology Short Course

A two day short course, *Principles of Adhesion*, will be taught by Prof. Gary R. Hamed of the University of Akron, and will begin on Saturday, October 19. A course description and registration information are enclosed.

Beer Session

A Beer Session on "Molecular Models of Polymer Fluids," will be held on Monday evening, October 21.

Instrument Exhibit

Over ten companies will exhibit rheological instrumentation during the annual meeting.

LOUIS ZAPAS 1991 BINGHAM MEDALIST

The Society is pleased to announce that Louis Zapas has been chosen to receive the Bingham Medal for 1991. Highlights of the exceptional scientific career that led to this award can be found on the following page. The Bingham Banquet honoring Mr. Zapas will be held on Tuesday, October 22, at the Holiday Inn-Genesee Plaza.

RHEOLOGY BULLETIN
Andrew M. Kraynik, Editor
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(505) 844-8872 (Secretary)
FAX: (505) 846-0295

LOUIS ZAPAS 1991 BINGHAM MEDALIST

The Bingham Medal for 1991 will be awarded to Mr. Louis Zapas of The National Institute of Standards and Technology for his extraordinary contributions to the field of rheology, especially in the development and experimental testing of the BKZ constitutive equation.

Mr. Zapas has been active at the forefront of rheological research for some forty years. Already by the early 1960's, Zapas was well known for his work in the measurement and theory of linear mechanical properties. He then broadened his activities by exploring the phenomenology of nonlinear behavior. It was known that nonlinearities could lead to new and unexpected phenomena such as normal stresses, but with few exceptions contemporary phenomenological studies were wedded to model networks of springs and dashpots, which were restricted in their validity to linear phenomena. Zapas and his colleagues at the (then) National Bureau of Standards formulated a phenomenological model of nonlinear viscoelastic behavior based solidly on physical principles. This model has come to be known as the BKZ or K-BKZ model. It was one of the earliest single-integral models, and is still considered by many rheologists to be the most useful.

From its original formulation up to the present, Mr. Zapas has conducted careful experimental studies of the BKZ model and has shown its degree of validity for a wide range of materials from very fluid polymer solutions to solid-like crosslinked rubbers. The data generated by Mr. Zapas were extraordinarily accurate and have been important in their own right to other rheologists. In this exemplary work, Mr. Zapas uncovered failings of the BKZ model as well as its successes, and he proposed extensions and modifications of it. The model has gained added importance in the last decade, since molecular theories of polymers, such as the Doi-Edwards theory, have been found to lead to an equation of the BKZ form.

Other rheologists have gained not only from Zapas' experimental data, but also from his experimental methods. Among now-widespread experimental practices in the study of nonlinear rheology, Zapas was the first or one of the first to use isochronal data, multiple-step strains, nonlinear versions of the concept of a material clock, and techniques for correcting step-strain data for finite step time.

Mr. Zapas has applied the concepts of nonlinear rheology not only to polymeric liquids, but also to rubbers, polymer

glasses, and semicrystalline polymers. He showed that what is referred to in the literature as "de-aging" (i.e., softening caused by a large deformation) can often be related to other nonlinear behavior of the material, including the nonlinear rheology. He found a sensitive test for constitutive equations of a broad class, involving a two-step strain history, where the magnitude of the second step is half that of the first.

Mr. Zapas has pioneered an approach that treats necking, cold drawing, and similar phenomena as mechanical instabilities arising from the material nonlinearities that can be modeled by phenomenological constitutive equations. He and his colleagues showed that the observations of such phenomena can often be related to measured stress relaxation properties. They found three regimes of failure of a bar in extension: regime I of ductile fracture, regime II where extensive drawing occurs, and regime III where crack initiation and growth occur. This work has stimulated much interest among mathematicians, engineers, and rheologists.

Mr. Zapas has been exceptionally generous in sharing his wide rheological experience with others. He has been an active member of The Society of Rheology since the early 1950's. His presence has been widely felt and appreciated through his talks, questions, and comments, as well as his informal discussions with everyone from Bingham medalists to graduate students. He has served the Society in several capacities, including Program Chairman and member of the Executive Committee. Having contributed so widely and deeply to both the science of rheology and to the rheological community, it is especially fitting that Louis Zapas receive the Bingham Award.

Nominations for the 1992 Bingham Medal

Nominations for the 1992 Bingham Medal should be submitted to the chairman of the Bingham Award Committee **before January 15, 1992**. Please note that this may be the only notice concerning the nomination. For additional information, contact the committee chairman:

Prof. Robert C. Armstrong
Department of Chemical Engineering, Room 66-352
Massachusetts Institute of Technology
Cambridge, MA 02139
(617) 253-4581

When submitting nominations, please observe the following brief guidelines, which have been condensed from the July 1988 Rheology Bulletin. The nominations shall include:

- a. a brief scientific biography,
- b. a review of those accomplishments upon which the nomination is based,
- c. a concise evaluation of the importance of the nominee's contribution in advancing the science of rheology,
- d. a list of publications and up to three reprints,
- e. supporting letters from other rheologists that address the nominee's contributions.

The Society of Rheology

Ballot for Election of Officers and Executive Committee

President

_____ Joe D. Goddard, University of Southern California

Vice President

_____ Robert C. Armstrong, Massachusetts Institute of Technology
_____ Stuart J. Kurtz, Union Carbide Company

Secretary

_____ Andrew M. Kraynik, Sandia National Laboratories

Treasurer

_____ Edward A. Collins, Avon Lake, Ohio

Editor

_____ Arthur B. Metzner, University of Delaware

Members at Large (Please vote for two)

_____ Ralph H. Colby, Eastman Kodak Company
_____ Ronald G. Larson, AT&T Bell Laboratories
_____ Donald G. LeGrand, General Electric Company
_____ Dale S. Pearson, University of California at Santa Barbara

Note, you may vote for any qualified person other than the listed nominee in the space provided.

Please return your ballot **before September 22, 1991** to:

Secretary, The Society of Rheology
Attention: Ms. Margaret Wiley
American Institute of Physics
335 East 45th Street
New York, NY 10017

GENERAL INFORMATION
63rd ANNUAL MEETING
THE SOCIETY OF RHEOLOGY
Rochester, New York
October 20-24, 1991

Location: All technical sessions and meeting functions will be held at the Holiday Inn, Genesee Plaza, in downtown Rochester, NY.

Registration: Please complete and return the enclosed registration form and your check to Glen H. Pearson before September 13 to avoid late fees. On-site registration will be provided at the Holiday Inn as follows:

| | |
|-----------------------|--------------------|
| Sunday, October 20 | 4:00 pm to 8:00 pm |
| Monday, October 21 | 8:00 am to 5:00 pm |
| Tuesday, October 22 | 8:00 am to 5:00 pm |
| Wednesday, October 23 | 8:00 am to 3:00 pm |

Accommodations: A registration form is enclosed for accommodations at the conference hotel, the Holiday Inn, Genesee Plaza. If you wish to reserve a room at the hotel, please complete the registration form and mail it directly to them. Alternative accommodations are available as indicated below with an approximate distance from the conference hotel. If you wish to reserve a room at the hotels listed below, please contact them using the phone numbers listed.

| | <u>Single Rate</u> | <u>Double Rate</u> | <u>Distance from Holiday Inn</u> |
|---|--------------------|--------------------|----------------------------------|
| Comfort Inn (716) 621-5700 | \$48 | \$54 | a 20 minute drive |
| Econo Lodge (716)427-2700 | \$46 | \$51 | a 20 minute drive |
| Red Roof Inn (716)359-1100 | \$38 | \$40 | a 25 minute drive |
| East Avenue Inn (800)759-7900 (716)325-5010 | \$62 | \$68 | 6 blocks |
| Stouffer Rochester Plaza (716)546-3450 | \$116 | \$126 | 1 block |

MAKE YOUR RESERVATIONS NOW!

Airport Transportation: The Greater Rochester International Airport is located roughly 10 minutes from downtown Rochester with over 190 arrivals/departures per day. Complimentary shuttle services are available from most hotels in the Rochester area to and from the airport. Taxi fare from the airport to the Holiday Inn is roughly \$15.

Dollar Rent a Car is offering a special convention rate for the meeting. Rates begin at \$31 per day and \$140 per week for an economy car. These rates are effective 5 days before and after the convention. Dollar offers free, unlimited mileage with every rental. If you wish to reserve a car through Dollar, please call 1-800-800-4000 (US) or 1-800-421-6868 (Canada) toll free. Use the reservation code **CCSR**.

Parking: Parking is available at several municipal and private lots in the downtown area. Fees will vary but generally average between \$4 to \$5 per day (8:00 am to 5:00 pm). Guests of the Holiday Inn may park free of charge at the hotel.

Sunday Evening Reception: There will be a welcoming reception at the Holiday Inn from 7:00-9:00 pm courtesy of Rheometrics, Inc.

General Business Meeting: The annual business meeting of the Society of Rheology will be held at the Holiday Inn on Tuesday, October 22, at 6:00 pm.

Banquet: The Bingham Award Banquet will be held at the Holiday Inn on Tuesday, October 22, at 8:00 pm. A cocktail hour will begin at 7:00 pm prior to the banquet courtesy of Bohlin Rheologi. **If you plan to attend the banquet, please indicate so on the enclosed Conference Registration Form. The banquet fee is not included in the conference registration fee.**

Beer Session: A Beer Session on "Molecular Models of Polymer Fluids" will be held at the Holiday Inn on Monday, October 21, beginning at 8:00 pm.

Instrument Exhibits: Several companies will demonstrate their products during the meeting at the Holiday Inn.

Accompanying Persons: The \$20 registration fee covers all receptions and a complimentary tour of downtown Rochester on Monday, October 21. A downtown shopping tour has been arranged through Rochester Rendezvous on Monday morning from 9:00 am to noon, compliments of the Society.

Sightseeing: A registration form is included for a number of sightseeing tours offered through Rochester Rendezvous, a local company specializing in tours of the Rochester and nearby area. If you would like to participate in any of the events listed, please indicate your intention on the form and mail it directly to Rochester Rendezvous, Inc., 245 Lake Avenue, Rochester, New York 14608.

CONFERENCE REGISTRATION FORM

THE SOCIETY OF RHEOLOGY
OCTOBER 20-24, 1991
Rochester, New York

Please complete and return to: Glen H. Pearson
Eastman Kodak Company
Rochester, New York 14652-3701
(716)722-9138 FAX: (716)722-7072

Name (also for badge use): _____
Organization: _____
Mailing Address: _____
City: _____ State: _____ Zip Code: _____
Telephone: _____ FAX: _____

| FEES: IF RETURNED BEFORE SEPTEMBER 13 | | LATE REGISTRATION | |
|---------------------------------------|-------------|-------------------|--|
| Full Conference Member | _____ \$65 | _____ \$85 | |
| Non-Member* | _____ \$105 | _____ \$125 | |
| Student | _____ \$25 | _____ \$25 | |
| Retired Member | _____ \$25 | _____ \$25 | |
| Banquet Ticket | _____ \$30 | _____ \$30 | |
| Accompanying Person | _____ \$20 | _____ \$20 | |

Name of accompanying person (for badge use): _____

* As a non-member you may elect to join the Society. The additional \$40 non-member's fee will be used as the first year's membership dues. If you wish to join, please signify your intention by signing your name below.
I elect to join the Society of Rheology at this time.

Please indicate your attendance at the banquet on this form. The registration fee does not include banquet attendance.

Refund Policy: Cancellations postmarked before October 1 will be subject to a \$25 administrative charge. No refunds will be made after October 1.

MAKE CHECK PAYABLE TO: The Society of Rheology. **Payment must accompany registration.**

Check (US Dollars) \$_____ is enclosed.

DIRECTIONS

FROM THE WEST: NYS Thruway to Exit 47 to I-490 East. Exit @ Plymouth Ave. & go right On Main St. take left - 4 blocks.

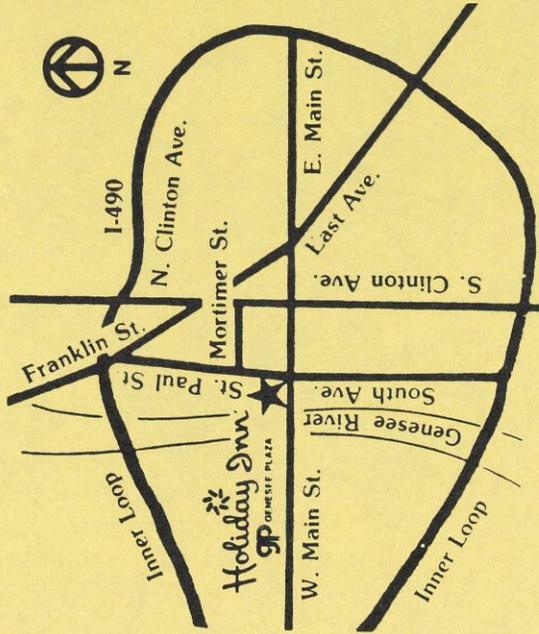
FROM THE EAST: NYS Thruway to Exit 45 to I-490 West. Exit @ Clinton Ave. Mortimer St. go left - 1 block.

- FREE PARKING WHEN AVAILABLE OR AIRPORT VAN FROM 7:00 AM - 10:00 PM. FOR REGISTERED GUESTS.
- INDOOR WALKWAY TO RIVERSIDE CONVENTION CENTER.
- CHECK-IN TIME 3:00 P.M./CHECK-OUT TIME 12 NOON.

- 120 East Main Street • Rochester, New York 14604

Reservations must be received 30 days prior to arrival, otherwise on space available basis. Rates subject to sales tax. Confirmation will be mailed upon receipt of this card. Reservations must be guaranteed by a major credit card or payment of one night's room rate and tax. Reservations will not be accepted without having first night guaranteed.

MAIL THIS FORM OR FAX TO 716/546-3908



Name: _____

Address: _____

City/State/Zip: _____

Phone No.: _____

Sharing room with: _____

PRINT OR TYPE

TO GUARANTEE RESERVATION

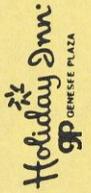
Credit Card No. _____

Authorized Signature _____

Expiration Date _____

| | |
|---|-------------------------|
| 63rd Annual Meeting of the Society of Rheology October 18 - October 24, 1991 | |
| _____ single \$76.00 | _____ double \$82.00 |
| _____ triple \$88.00 | _____ quadruple \$94.00 |

| | |
|----------------------------------|------------|
| Arrival Date _____ | Time _____ |
| Departure Date _____ | Time _____ |
| Arriving by Car _____ | Air _____ |
| RESERVATIONS MUST BE RECEIVED BY | |
| 9/18/91 | |



120 East Main Street
Rochester, New York 14604

REGISTRATION FORM

Please indicate the Tours you wish to attend by checking the appropriate line and record the number of persons attending for each choice with amount owed. Please add all amounts and indicated total enclosed \$ _____.

October 1, 1991 is the deadline for reserving and cancelling reservations. This amount is totally refundable if cancelled in writing to Rochester Rendezvous, Inc. before October 1, 1991.

Rochester Rendezvous, Inc. reserves the right to cancel any tour/event for which required minimums/maximums (as stated below for individual offerings) are not met.

Departure and return for all Tours is the Genesee Plaza Holiday Inn.

A Hospitality and Guest Services Desk will be available for all delegates at a convenient location in the hotel. The Hospitality Desk will be available for the following guest services:

- Pre-paid tour ticket pick-up
- Itinerary Services
- Additional ticket pick-up (upon availability)
- Restaurant Reservation Service
- General Visitor Information

Hospitality and Guest Services Desk Date(s)/Hours:

- Sunday, October 20, 1991 - 4:00 p.m. to 7:00 p.m.
- Monday, October 21, 1991 - 3:00 p.m. to 6:00 p.m.
- Tuesday, October 22, 1991 - 9:00 a.m. to 12:00 noon
- Wednesday, October 23, 1991 - 3:00 p.m. to 6:00 p.m.

TOUR DESCRIPTIONS

Finger Lakes Wine Country (4 Hours) - A mini tour of Canandaigua scenic overlooks, a tour, and a winetasting at Widmer's Winery. Minimum 20 guests.

Orientation/Stroll & Shop (3 Hours) - Join us for a welcome and overview of Rochester's past, present, and future followed by a walking tour of downtown Rochester with a stop in our major downtown retail district. Minimum N/A guests.

Specialty Shopping - Marketplace/Discount (4 Hours) - Shop 'til you drop in Rochester's largest and most complete shopping district, Marketplace Mall, with additional stops at world famous Wegmans and the Champion Sportswear Clothing Outlet. Minimum 20 guests.

Rochester Museum Sampler (4 Hours) - Mini City Familiarization Tour with stops at two famous museums, the either Margaret Woodbury Strong Museum (dolls, miniatures, china galore) and the International Museum of Photography on the mansion museum of George Eastman, founder of Eastman Kodak Company. Minimum 20 guests.

Specialty Shopping - Downtown (4 Hours) - Partake in shopping at some of Rochester's most famous boutiques, Village Gate Square, the Parkleigh, Museum Shop, and Craft Company No. 6, plus other shopping. Sure to delight our visitors. Minimum 20 guests.

Niagara Falls (8.5 Hours) - Includes both American and Canadian viewing, Visitor Center, Maid of the Mist, Goat Island, Tablerock, and one other attractions. Lunch is included - dinner on own.

* Guests must carry birth certificates or passports for entry into Canada. Minimum 20 guests.

TOURS

| Title | Day/Date | Time | Fee | x | No. of Guests | = | Amount |
|--|--------------------|-----------------------|----------|---|---------------|----------------|----------|
| ___ Finger Lakes | Sunday, Oct. 20 | 12:00 noon-4:00 p.m. | \$ 34.50 | x | | = | \$ |
| ___ Orientation/Shop | Monday, Oct. 21 | 9:00 a.m.-12:00 noon | \$ Comp. | x | | = | \$ |
| ___ Shopping/Marketplace | Monday, Oct. 21 | 1:00 p.m.-5:00 p.m. | \$ 15.50 | x | | = | \$ |
| ___ Museum Sampler | Tuesday, Oct. 22 | 1:00 p.m.-5:00 p.m. | \$ 23.50 | x | | = | \$ |
| ___ Shopping/Downtown | Wednesday, Oct. 23 | 1:00 p.m.-5:00 p.m. | \$ 16.75 | x | | = | \$ |
| ___ Niagara Falls* | Thursday, Oct. 24 | 12:30 p.m.-10:30 p.m. | \$ 50.75 | x | | = | \$ |
| Minimum <u>20</u> guests or cancellation will occur. | | | | | | Total Enclosed | \$ _____ |

Please return this form with total payment in U.S. dollars to: Rochester Rendezvous, Inc., 245 Lake Avenue, Rochester, New York 14608 Attention: Aletha Patricelli. Deadline Date: October 1, 1991

*Guests must carry birth certificates or passports for entry into Canada.

SOCIETY OF RHEOLOGY

NAME _____
 ADDRESS _____
 CITY _____ STATE _____ ZIP _____
 TELEPHONE () _____

REGISTRATION FORM

RHEOLOGY SHORT COURSE

Saturday/Sunday October 19 and 20, 1991

Holiday Inn Genesse Plaza
120 East Main
Rochester, N.Y. 14604

Fax (716)-546-3908

NAME _____

RESIDENCE ADDRESS _____

COMPANY AFFILIATION _____

ADDRESS _____

BUSINESS PHONE () _____

RESIDENCE PHONE () _____

DATE OF ARRIVAL _____

Please return this registration form together with payment to;

Dr. Peter E. Clark
Department of Mineral Engineering
The University of Alabama
P.O. Box 870207
Tuscaloosa, AL 35487

THE SOCIETY OF RHEOLOGY

TWO-DAY SHORT COURSE

PRINCIPLES OF ADHESION

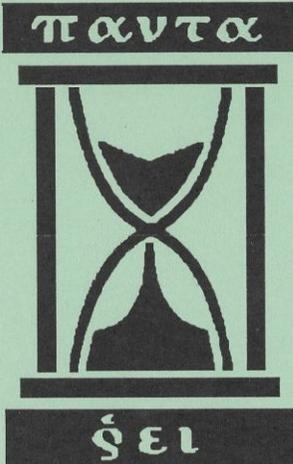
GARY R. HAMED

Professor of Polymer Science

College of Polymer Science and Polymer Engineering
The University of Akron

To be held Saturday and Sunday
October 19 and 20, 1991

Holiday Inn Genesee Plaza
120 East Main
Rochester, N. Y. 14604



Course Description

Adhesion is the interaction that develops between two dissimilar bodies when they are contacted. Adhesion is a multidisciplinary science dealing with the chemistry and physics of surfaces and interfaces as well as the mechanics of deformation and fracture of adhesive joints. In this course, these various aspects of adhesion are discussed. The general types of adhesive bonds are described first, followed by a discussion of the characterization of solid surfaces and surface treatments. Various methods of measuring adhesive joint strengths are then considered. Rheological aspects are emphasized, including the role of plasticity and other energy dissipating mechanisms on joint strength. Also, the effects of rate and temperature on joint strength are considered.

Emphasis will be on the fundamental principles relevant to adhesion so that the attendees will understand why various materials and methods are employed in the adhesive, sealant and coatings industry. Where possible, concepts will be generalized to provide useful principles for technologists. For example, some questions to be answered include:

- Fundamentally, why do materials adhere or not?
- What are the mechanisms of adhesion?
- Why are surface treatments used? What is the mechanism for enhanced bondability?
- Why do joint strengths depend on bond thickness? Rate? Temperature?
- Why are tackifiers effective? How does this relate to their structure?
- What is the role of viscoelasticity in bond performance?
- What are the fundamental criteria for obtaining high tack or pressure sensitive adhesion?

Session I—9:00 a.m.—12:00 noon

- A. Surfaces and their characterization
 - 1. Surface topography
 - 2. Surface tension and energy
 - 3. Wetting and setting
 - 4. Thermodynamic work of adhesion
 - 5. Surface analysis
 - 6. Surface treatment
 - a. Polyolefins
 - i. Plasma
 - ii. Corona discharge
 - iii. Flame
 - iv. Acid etching
 - v. Transcrystalline growth
 - vi. Ultraviolet light
 - vii. Surface grafting
 - b. Fluorocarbon polymers
 - c. Metals
 - i. Degreasing
 - ii. Sand blasting
 - iii. Etching
 - iv. Anodizing
 - v. Oxide morphology and stability
 - vi. Primers

Session II—1:30 p.m.—4:30 p.m.

- A. Mechanism of adhesion
 - 1. Mechanical interlocking
 - 2. Interdiffusion
 - 3. Adsorption and surface reaction
 - i. Coupling agents
 - 4. Acid—base interactions

Session III—9:00 a.m.—12:00 noon

- A. Strength of adhesive joints
 - 1. Fracture mechanics of simple joints
 - i. Methods
 - ii. Peeling
 - iii. Shear
 - iv. Tensile
 - v. Fiber Pullout
 - vi. Blister
 - 2. Rate—Temperature effects
 - 3. Energy dissipation
 - 4. Fracture loci

Session IV—1:30 p.m.—4:30 p.m.

- A. Autohesion and Tack
 - 1. Pressure sensitive adhesion
 - i. Takifiers
 - ii. Plasticizers
 - iii. Fillers
 - iv. Viscoelastic aspects
 - 2. Autohesion
 - i. Self-diffusion
 - ii. Molecular weight
 - iii. Contact time and pressure

REGISTRATION

The fee for the two day course and lecture notes is \$300.00 prior to September 15, 1991. A late registration fee of \$325.00 is acceptable thereafter. Student rates are half of the above. Checks should be made payable to The Society of Rheology and sent together with the registration form to

Peter E. Clark
Department of Mineral Engineering
The University of Alabama
P.O. Box 870207
Tuscaloosa, AL 35487

Telephone (205)-348-1682
Fax (205)-348-9455

Reservations for lodging at the Holiday Inn Genesee Plaza should be made by the participants (Fax 716-546-3908. A block of rooms has been reserved so mention the Society of Rheology when making reservations.

Application for Membership in THE SOCIETY OF RHEOLOGY

I wish to apply for membership in THE SOCIETY OF RHEOLOGY dating from January 19 _____

Name _____
(Please print)

Mail Address _____

Telephone Number _____

E Mail Number _____

Fax Number _____

Please indicate in the boxes provided below the code letter from the list at right, which best describes your areas of interest in order of decreasing importance.

- PRIMARY
- SECONDARY
- TERTIARY

Professional Affiliation

- Academic
- Industrial
- National Laboratory
- Other

| INTEREST AREA | CODE |
|--------------------------------|------|
| Biorheology | A |
| Experimental methods | B |
| Foods | C |
| Inks, Paints, Coatings | D |
| Materials Science | E |
| Petroleum Production | F |
| Plastics Processing | G |
| Polymer Dilute Solutions | H |
| Polymer Melts and Conc. Solns. | I |
| Rational Mechanics | J |
| Rubbers and Elastomers | K |
| Solid Polymers | L |
| Suspensions | M |
| Theory of Viscoelasticity | N |
| Electrorheology | P |
| Composite Materials | Q |
| Other _____ | O |

I understand that my regular member's subscription to the **Journal of Rheology** is for my personal use, and not for library use.

(Signature) _____ (Date)

Enclose remittance of \$40 for Regular Annual Dues (\$25 for Student and Retired Members) and mail to:

THE SOCIETY OF RHEOLOGY
c/o American Institute of Physics
335 East 45th Street
New York, NY 10017

| | | | |
|--|--------------------|-----------|-----------|
| Complete if paying by credit card <input type="checkbox"/> AMERICAN EXPRESS <input type="checkbox"/> VISA <input type="checkbox"/> MASTER CARD | CREDIT CARD NUMBER | EXP. DATE | SIGNATURE |
|--|--------------------|-----------|-----------|

Annual Meetings of The Society of Rheology

- 1991 63rd Annual Meeting, October 20-24 Rochester, NY
- 1992 International Congress on Rheology, August 17-21,
Brussels, Belgium
- 1993 64th Annual Meeting February 7-10 Santa Barbara, CA
- 1993 65th Annual Meeting, October 17-21 Boston, MA

For membership information, contact:

Professor A. Jeffrey Giacomin
Chairman, Membership Committee
Polymer Science and Engineering Program
Texas A&M University
College Station, TX 77843-3123
(409) 845-1571 FAX (409) 845-3081

E-mail: AJG7063@TAMVENUS.BITNET

THE SOCIETY OF RHEOLOGY

BALANCE SHEET FOR YEAR ENDING DECEMBER 31, 1990

ASSETS

| | |
|---------------------------|---------------------|
| AIP Account Balance | 241,467.73 |
| Investment Accounts (CDs) | 43,310.74 |
| Savings Account | 17,720.81 |
| Checking Account | 6,254.82 |
| Total Assets | \$308,754.10 |

LIABILITIES AND FUND BALANCES

| | |
|--|---------------------|
| Nonmember Journal Subscriptions Collected in Advance | 108,840.00 |
| Dues Collected in Advance | 29,559.45 |
| Publication Reserve Fund | 100,000.00 |
| General Reserve Fund | 70,354.65 |
| Total Liabilities and Fund Balances | \$308,754.10 |

Edward A. Collins
Treasurer
June 27, 1991

MINUTES OF THE EXECUTIVE COMMITTEE MEETING March 17, 1991

The Executive Committee Meeting was called to order at 9:00 a.m. on March 17, 1991 at the Ramada Inn, Philadelphia. Executive Committee Members present included: Bob Mendelson, Joe Goddard, Ed Collins, Art Metzner, John Dealy, Bob Prud'homme, Henning Winter, and Andy Kraynik. Kurt Wissbrun and Bruce Hartmann also attended.

The minutes of the October 21, 1990 Executive Committee Meeting as printed in the January 1991 Rheology Bulletin were corrected to read that Art Metzner was asked to leave the room when the issue of compensation for the Editor was discussed and voted upon.

Ed Collins, Treasurer, reported a balance of \$308,754.10 as of December 31, 1990. This balance reflects significant income from 1991 nonmember subscriptions collected in 1990. We intend to start building publication and general reserve funds to ensure safe operation of the Journal of Rheology and other Society business, as discussed below. The Treasurer's report was accepted as read.

John Dealy reported for the Audit Committee, which was formed in 1990 to study financial reporting and asset verification for the Society. A new format for reporting our financial status to the membership in the Rheology Bulletin and at annual meetings was recommended. The new format will include providing estimated and actual budgets for the current and previous years, permitting easier year-to-year evaluation of our financial status. The Society will also establish two reserve funds: a General Fund will serve as a reserve to cover deviations between estimated budget figures and actual figures due to unforeseen circumstances, a Journal Fund would serve to guarantee continued publication of the Journal of Rheology in the face of possible serious short term reverses. In addition, once a year the Executive Committee will designate a member of the Society or an accountant to inspect Society assets and present a report listing these and attesting that they have been verified. The recommendations of the Audit Committee were accepted and will be adopted immediately.

Art Metzner, Editor, provided a status report on the Journal of Rheology. The 1992 nonmember subscription charge will be set at \$320. We will maintain page charges at \$15/page, increase reprint charges by 10%, and reduce free reprints from 100 to 50 copies. If payment for the Journal is not received, nonmember subscriptions will be honored for six months and individual members will receive two issues before subscriptions are terminated. The Editor's report was accepted as read.

The Bingham Award Committee nomination of Mr. Louis Zapas was considered and accepted.

Bruce Hartmann reported on the technical program for the upcoming annual meeting in Rochester, NY and read a report from Glen Pearson on local arrangements. Joe Goddard summarized a report from Dale Pearson on local arrangements for Santa Barbara, CA in February 1993. Bob Armstrong reported by letter on local arrangements for the Boston

Meeting in October 1993. Suggestions for host locations beyond 1993 are welcome.

Kurt Wissbrun, Administrative Assistant to the Editor, summarized his findings on financial and editorial decision making associated with the Journal. Discussion centered around division of responsibilities and deadlines.

Bob Mendelson appointed Joe Goddard to chair an ad hoc committee to prepare an amendment to the by-law that established the Meetings Policy Committee.

Henning Winter suggested that the Society establish a new award to be given to a young investigator for outstanding achievements in rheology research. This issue will be studied further and brought before the Executive Committee.

The meeting was adjourned at 5:15 p.m.

IN MEMORY JOHN HABERSHAM ELLIOTT

Society members will be saddened to learn that John Elliott died March 10, 1991 of a stroke in Newark, DE. John was president of The Society of Rheology from 1959 to 1961. He received a bachelor's degree in 1935 from Haverford College and then went to the University of Pennsylvania where he received master's and doctorate degrees in 1937 and 1940, respectively. He worked for Hercules Inc. from 1942 until he retired in 1978. John was also an active member of the American Chemical Society.

MEETING ANNOUNCEMENTS

October 23-25, 1991: 39th Rheology Congress, Society of Rheology, Japan in Nagoya. Contact: Prof. Kunihiro Osaki, 1-101 Izumidono-cho, Yoshida, Sakyo-ku, Kyoto, 606 JAPAN.

February 2-5, 1992: Seventh International Workshop on Numerical Methods in Non-Newtonian Flow, Hutchinson Island, Stuart, FL. Contact: Prof. D. G. Baird, Department of Chemical Engineering, Virginia Polytechnic Institute & State University, Blacksburg, VA 24061-0211.

August 17-22, 1992: XIth INTERNATIONAL CONGRESS ON RHEOLOGY, Brussels, Belgium. Contact: Dr. Paula Moldenaers, Chemical Engineering Department, Katholieke Universiteit Leuven, W. de Croylaan 46, B-3001 Leuven, BELGIUM, FAX: 32-16-22 15 22.

August 22-28, 1992: 18th International Congress of Theoretical and Applied Mechanics, Haifa, Israel. Contact: Prof. A. Solan, Secretary ICTAM 1992, Faculty of Mechanical Engineering, Technion - Israel Institute of Technology, Haifa 32000, ISRAEL.

February 7-10, 1993: 64th Annual Meeting of The Society of Rheology, Santa Barbara, CA.

October 17-21, 1993: 65th Annual Meeting of The Society of Rheology, Boston, MA..

THE SOCIETY OF RHEOLOGY
FINANCIAL STATEMENT AS OF JULY 1991

| REVENUES | 1989 Budget | 1989 Actual | 1990 Budget | 1990 Actual | 1991 Budget |
|--|-----------------|-------------------|----------------|-------------------|----------------|
| Dues | 34,000 | 19,785.88 | 46,000 | 73,181.60 | 46,000 |
| Interest | 2,500 | 5,304.18 | 4,000 | 20,328.62 | 14,000 |
| Journal of Rheology | 4,000 | 37,270.00 | 21,200 | 174,254.94 * | 1,000 |
| Mailing List Sales | | 955.74 | | 460.80 | |
| Annual Meetings | | 9,485.00 | | 7,182.23 | 8,000 |
| Short Courses | | 4,036.25 | | 2,950.00 | |
| Prepaid Journal Nonmember Subscriptions | | | | 108,840.00 | |
| Total Revenue | 40,500 | 76,837.05 | 71,200 | 278,358.17 | 69,000 |
| EXPENSES | | | | | |
| AIP Administrative Services | 3,000 | 2,100.00 | 6,000 | 6,000.00 | 7,000 |
| AIP Billing | 3,300 | 2,978.25 | 3,300 | 481.05 | 5,400 |
| AIP Member Records | 3,600 | 3,225.00 | 3,600 | 6,268.95 | 3,600 |
| AIP Member Society Dues | 2,400 | 2,126.00 | 2,400 | 2,054.00 | 2,400 |
| AIP Financial Handling | 1,000 | 400.00 | 1,000 | 3,300.00 | 3,000 |
| AIP Physics Olympiad | | 500.00 | 500 | 500.00 | 1,000 |
| Renewal Billing | | 1,838.64 | | 889.85 | |
| Journal of Rheology | 30,000 | 9,179.34 | 31,000 | 45,396.89 * | |
| Bulletins and Abstracts | 3,000 | 6,448.74 | 4,000 | 8,717.90 | 5,000 |
| Short Courses | | 4,274.17 | | 2,453.25 | |
| Bingham Award | 1,000 | 809.40 | 1,000 | 538.00 | 3,000 |
| Executive Committee Meetings | 600 | 672.82 | 1,000 | 1,262.00 | 2,000 |
| President's Discretionary Fund | 1,000 | | 1,000 | 467.63 | 1,500 |
| Treasurers Discretionary Fund | 1,000 | | 1,000 | 670.00 | 1,500 |
| Program Chairman's Discretionary Fund | | | | | 2,000 |
| Secretarial Services | 1,000 | | 1,000 | | 1,000 |
| Mailing | | 417.05 | | 2,773.69 | 2,000 |
| Office Expenses | 7,500 | 765.16 | 9,000 | 1,076.41 | 5,000 |
| Banking Services | | 14.00 | | 45.11 | |
| Liability Insurance | | 148.00 | 150 | 146.00 | 150 |
| Council of Scientific Society Presidents | 150 | 100.00 | 150 | 100.00 | 150 |
| Membership Directory | | 2,266.24 | | | |
| Membership Brochure | | | | 525.79 | |
| Accountant | | | | | 1,000 |
| Total Expenses | 58,550 | 38,262.81 | 66,100 | 83,666.52 | 46,700 |
| NET INCOME (LOSS) | (18,050) | 38,574.24 | 5,100 | 194,691.65 | 22,300 |
| TOTAL ASSETS AT YEAR END | | 114,062.45 | | 308,754.10 | |

Edward A. Collins
Treasurer
June 27, 1991

* These figures reflect the change in publisher for the Journal of Rheology from John Wiley & Sons to AIP.

This new format has been adopted to facilitate year-to-year evaluation of financial status.