

RHEOLOGY BULLETIN

Publication of The Society of Rheology, Inc.

Vol. 47, No. 1

April, 1978



49th ANNUAL MEETING
October 22-26, 1978
Stouffer's Greenway Plaza Hotel
Houston, Texas

CALL FOR PAPERS
Deadline for Abstracts - July 15, 1978

Scope of Papers

The Program Committee will consider any paper which deals with rheological problems of solid, melt, or solution, involved in material production, processing, characterization and property evaluation, etc. for polymeric materials, foodstuffs, petroleum products and others.

The following symposia are planned in addition to the general sessions.

Rheology of Polymer Processing

C. I. Chung
Rensselaer Polytechnic Institute
Troy, New York 12181

Rheology of Multiphase Polymers

D. J. Meier
Midland Macromolecular Institute
1910 W. St Andrews Drive
Midland, Michigan 48640

Rheology of Petroleum, Oil Recovery and Lubricants

G. A. Pope
University of Texas
Dept. of Petroleum Engineering
Austin, Texas 78712

Rheology of Foodstuffs

Y. Chen
Rutgers University
Dept. of Mechanics & Materials Science
New Brunswick, New Jersey 08903

Bio-Rheology

L. V. McIntire
Rice University
Chemical Engineering Dept.
Houston, Texas 77001

Any questions concerning papers may be directed to the Program Chairman, Chan I. Chung, at Rensselaer or to the appropriate symposium chairman.

Length of Papers

Each paper will be scheduled for 30 minutes, including discussion. Formal presentation will be limited to about 20 minutes.

Submission of Papers

The original and two copies of all abstracts should be

in the hands of the Program Chairman by July 15, 1978. Contribution of papers is open to all members and also to non-members of the Society. A full manuscript is not necessary for presentation at the Annual Meeting.

Abstract Size

A maximum of 200 words in English is allowed. Drawing are not permitted and equations are discouraged. All symbols must be clearly defined. Abstracts accepted for presentation will be published in the Fall Bulletin of the Society.

Acceptance of Papers

Acceptance of papers for presentation will be determined by the Program Committee after review of their general content, originality, and relevance to the objectives of the Society. Publication of papers presented at the Annual Meeting in the official journal of the Society, "Journal of Rheology", is highly recommended but not required.

Facilities

A blackboard, 2x2 and 3 $\frac{1}{4}$ "x4 $\frac{1}{4}$ " slide projectors will be provided. If other facilities such as a movie projector and an overhead projector are required, the Program Chairman should be notified before September 15, 1978.

BINGHAM AWARD NOMINATION

The Bingham Award Committee requests nominations for the 1978 Award. Please send such nominations and curriculum vitae (if available) or address of the nominee to C. Eugene Miller Civil Engineering Dept., Speed Scientific School, University of Louisville, Louisville, Kentucky 40208. Deadline: April 15, 1978.

SHORT COURSE ON RHEOLOGY

University of Houston
Houston, Texas
October 21-22, 1978
Rheology of Dispersions
I. M. Krieger and R. L. Hoffman

FUTURE SOCIETY OF RHEOLOGY MEETINGS

U.S.-JAPAN JOINT MEETING
April 7-9, 1979
Hotel King Kamehameha
Kona, Hawaii

Local Arrangements Committee:

N. Nakajima, H. Kambe* (Cochairmen)

Program Committee:

H. Kawai*, D. Bogue (Cochairmen)
M. Kurata*, K. Ninomiya*,
R. Lendel, R. Stein

*Japan Society of Rheology

RHEOLOGY BULLETIN
Raymond R. Myers, Editor
Department of Chemistry
Kent State University
Kent, Ohio 44242

**50th Anniversary Meeting
(1979 ANNUAL MEETING)**

December 2-6, 1979
Copley Plaza Hotel
Boston, Massachusetts

Local Arrangements Cochairmen:
E. J. Tolle, R. E. Cohen

Program Committee:
R. S. Porter

Coordinating Committee:
J. R. Knox (Chairman)
E. J. Tolle, R. S. Porter
R. S. Rivlin, I. M. Krieger

COMMITTEES

Executive Committee

I. M. Krieger (President)
E. B. Bagley (Vice President)
E. A. Collins (Treasurer)
M. T. Shaw (Secretary)
R. R. Myers (Editor)
J. R. Knox (Past President)
A. B. Metzner (Member-at-Large)
W. R. Schowalter (Member-at-Large)

Membership Committee

C. L. Sieglauff (Chairman)
L. V. Cancio
J. H. Elliott

Bingham Award Committee - 1978

C. E. Miller - 1978 (Chairman)
N. H. Mohsenin - 1978
E. B. Christiansen - 1979
S. G. Mason - 1979
K. Wissbrun - 1980
R. B. Bird - 1980

Program Committee (1978 Annual Meeting)

C. I. Chung (Chairman)
Y. Chen
L. V. McIntire
D. J. Meier
G. A. Pope
R. S. Porter
L. Westerman

Local Arrangements Committee (1978 Mtg)

R. W. Flumerfelt (Chairman)
Dept. of Chemical Engineering
University of Houston
Houston, Texas 77004
L. V. McIntire
R. Darby

Site Selection and Topics Committee

E. A. Collins (Chairman)
E. J. Tolle
C. T. Hill

Committee on Short Courses

J. L. White (Chairman)
E. A. Collins
C. W. Macosko

Representatives to International Committee on Rheology

J. R. Knox

Publicity and Public Relations

J. R. Knox (Chairman)
R. S. Porter

Representative to National Committee on

Theoretical and Applied Mechanics
H. Markovitz

MINUTES OF THE EXECUTIVE COMMITTEE MEETING

October 23, 1977
Chicago O'Hare Field

Executive Committee members present were: E. A. Collins, J. R. Knox, I. M. Krieger, R. A. Mendelson, R. R. Myers and C. L. Sieglauff. Also present were: E. B. Bagley, L. V. Cancio, and E. J. Tolle.

- Minutes of the February 27, 1977, Executive Committee meeting were presented by Secretary Mendelson and acceptance as published in Rheology Bulletin was moved, seconded and passed.
- Treasurer Collins presented the Treasurer's Report. Two items added to the 1978 budget estimate were membership directory publication and 1978 expenses relative to the 1979 50th Anniversary meeting. Collins noted in discussion the difficulty of finalizing Society balance statements due to late (sometimes as much as one to two years) revisions to AIP financial statements. Acceptance of Treasurer's Report was approved, seconded and passed.
- The Editor's Report was presented by Editor Myers and acceptance was moved, seconded and passed. Journal Publication in 1978 will be on a bimonthly basis, with the principal title changed to "Journal of Rheology." As a consequence of revisions in the copyright laws starting January 1, 1978, journals are required to secure written transfer of copyrights from authors. A form has been drafted and is now being sent to authors as standard practice.
- L. V. Cancio reported for the Program Committee for the current (Madison) meeting, indicating that two accepted papers had been withdrawn and that three additional papers (not in the published program) had been accepted. President Knox reported for the Local Arrangements Committee that all arrangements had been completed and appeared to be in order. Membership Committee Chairman Sieglauff reported an official membership count as of July 1 of 831, with an increase since then to 850. Discussion followed concerning Sustaining Member dues level and whether it should not be higher, particularly if the new copyright law and proposed arrangements with AIP give the right to copy AIP journal articles to Society of Rheology Sustaining Members. No decision on any change was made at this meeting.
- Meeting Site Selection Committee report was presented by Collins and E. J. Tolle. This required several decisions by the Executive Committee. Hotel recommendations for the 1978 Annual Meeting in Houston were reviewed, and it was moved, seconded and passed that Stouffer's Hotel at Greenway Plaza be chosen for arrangements. Hotel recommendations, timing and preferences of the Japan Society were reviewed for the Hawaii U.S.-Japan joint meeting in the Spring of 1979 (corresponding with the Hawaii meeting of the Polymer Chemistry (and other divisions) Div. of ACS). It was moved, seconded and passed to make meeting arrangements with the Hotel King Kamehameha on Kona. Specific timing deci-

- sions were left to be worked out between the Society of Rheology (Knox and Collins) and Prof. Kambe, acting for the Japan Society of Rheology. However, it was moved, seconded and passed that the meeting not overlap or be continuous (in days) with the ACS meeting. It was also suggested that a Gordon Conference format (i.e., morning and evening sessions) be considered. The relative merits of a Poconos resort hotel or the Copley Plaza Hotel in Boston for the 1979 Annual Meeting (50th Anniversary celebration of The Society) was discussed. It was moved, seconded and passed to select the Copley Plaza in Boston for this meeting, and Tolle was instructed to reserve the proposed dates, November 25-29, 1979.
6. Mendelson indicated that AIP requires by January 1, 1978, the election or appointment of the Society's member on the AIP Governing Board. I. M. Krieger was appointed to succeed J. R. Knox.
 7. Mr. Herbert Friedman joined the meeting and was introduced by President Knox. Mr. Friedman presented arguments for the Society joining the group insurance program (of which he is administrator) open to AIP member societies and currently being used by the American Physical Society, among others. No action was taken by the Executive Committee concerning this program.
 8. Knox reported that a historical documentation of The Society is moving slowly, but is expected to be ready for the 50th Anniversary meeting. He reported that there had been no activity by the Nomenclature Committee. The relationship of the Society's nomenclature activities with those of IUPAC (through the International Committee on Rheology) was discussed. He also reported that the ad hoc committee on University-Industrial Relations had submitted a final report on their activities (by N. Nakajima) and had been duly disbanded with congratulations for a job well done. The Constitution Committee also has been disbanded after completing its task of recommending changes to the Constitution and Rules (which have since been approved by the membership). Knox reported on three upcoming meetings which are relevant to rheologists: November, 1977 meeting of AIChE, an AIChE meeting in Atlanta in 1978 including food rheology, and the 25th Anniversary of the Microcirculation Society meeting in 1979. It was pointed out that there are symposia on rheology of various types being held in various places; the question raised is how to integrate all of this or whether it is even wise to try. The question of suggesting an international rheology award to be administered by the International Committee on Rheology was brought up with no definitive position taken.

Respectfully submitted,
R. A. Mendelson, Secretary

MINUTES OF 48th ANNUAL MEETING

OCTOBER 24, 1977
Madison, Wisconsin

The meeting was called to order by President Knox at 5:35 p.m.

1. The new officers and Executive Committee members-at-large were presented (I. M. Krieger, President; E. B. Bagley, Vice President; M. T. Shaw, Secretary; E. A. Collins, Treasurer; R. R. Myers, Editor; and A. B. Metzner and W. R. Schowalter, Executive Committee members-at-large).
2. It was announced that the executive committee met at O'Hare Airport on October 23, 1977.
3. Future annual meetings were announced: the 49th is to be in Houston, with R. W. Flumerfelt in charge of local arrangements, while the 50th will be held in Boston, with E. J. Tolle handling the arrangements.

4. The report of the Secretary was read by J. R. Knox (who noted the contributions of Secretary, R. A. Mendelson, to The Society) and accepted by motion, second and voice vote. A decrease in membership to 831 was attributed to the removal of members delinquent in dues.
5. The report of the treasurer was read by E. A. Collins, Treasurer. The upcoming expenses of a new roster and the 50th anniversary bulletin were judged to be well within the resources of The Society. The report was accepted by motion, second and voice vote.
6. The Editor's report was read by R. R. Myers, Editor, and its approval was moved, seconded and passed by voice vote.
7. President J. R. Knox acknowledged and officially thanked the local arrangements committee (R. B. Bird and A. S. Lodge, assisted by M. W. Johnson and J. L. Schrag) and the program committee (L. V. Cancio, W. W. Graessley, assisted by J. L. Schrag, A. S. Lodge and D. Hunston).

The meeting was adjourned at 5:55 p.m.

Respectfully submitted,
M. T. Shaw
(for R. A. Mendelson,
outgoing secretary)

1977 Report of the Secretary to the Annual Business Meeting of the Society of Rheology

(Madison, Wisconsin, Oct. 24, 1977)

Two national technical meetings of the Society were held in 1977; the first being the 47th Annual Meeting, delayed from 1976 because of the VIIth International Congress on Rheology (Aug. 1976), and the second being the current 48th Annual Meeting in Madison, Wisconsin. With approximately 80 invited and contributed papers scheduled at the current meeting, the total number of papers delivered at the two meetings in 1977 will be approximately 144. The 49th Annual Meeting will be held in Houston, Texas in 1978.

Arthur B. Metzner was named recipient of the 1977 Bingham Medal Award.

Membership in the Society in 1977 (as of July 1) was 831, down somewhat from 1976, principally due to adherence to the rules requiring removal of delinquent members from the membership roster. However, the need for increased effort to expand the membership of The Society continues.

Following appropriate (as required by the Constitution and/or Rules) authorization by the Executive Committee and the members at the 47th Annual Business Meeting a series of amendments to the Constitution and the Rules were sent by letter ballot to the membership. In general these amendments were to facilitate the formation of interest-oriented divisions, to reduce or eliminate dues for retired or unemployed members (however, with the stipulation that such members would not receive technical journals), and to make the Bingham Award officially mandated by the Rules of the Society. All submitted amendments were approved by the membership and are now a part of the Constitution and Rules.

The following Officers and Executive Committee Members-at-Large were elected by letter ballot to serve two-year terms commencing with the close of this Annual Business Meeting.

President — I. M. Krieger
Vice President — E. B. Bagley
Secretary — M. T. Shaw

Treasurer — E. A. Collins
 Editor — R. R. Myers
 Members-at-Large — A. B. Metzner and
 W. R. Schowalter

The outgoing Secretary wishes to thank the members for the opportunity to serve the Society and the officers and committee members for their cooperation. Particular acknowledgement is made of the aid and cooperation of Mrs. Margaret Nightingale of AIP. Finally, he wished to acknowledge the aid of Monsanto Company in defraying minor expenses and providing time and services incident to the performance of the Secretary's duties.

Respectfully submitted,
 R. A. Mendelson, Secretary

Editor's Report OCTOBER 12, 1977

Publication Status

Volume 21 is the last one to be issued under the title "Transactions of the Society of Rheology." Volume 21 is also the last issue to appear quarterly. Issues 1 through 3 contained 23 papers and 2 notes.

To date, a total of 30 manuscripts were submitted in 1977. These were parceled out as follows:

	No. Assigned	No. Pending
Collins	5	5
Onogi	1	0
Savins	2	1
Sieglaff	4	3
White	7	1
Myers	7	4
Krieger	3	3
Silberberg	1	1

Change in Name

This is the first year of the two-year change to "Journal of Rheology" as the title of our official organ. Starting next year we will be publishing on a bimonthly basis and will include abstracts of papers submitted at regular meetings of The Society as well as those abstracts of papers appearing in the Journal of the Society of Rheology, Japan.

Bulletins

Bulletins were issued in the months of May and August, 1977.

Copyright Agreement

Starting January 1, 1978 journals are required to secure transfer of copyrights from authors. A form permitting this transfer has been drafted and is now being sent to each author as standard operating procedure.

Definitive Papers

The first of our definitive papers, published by invitation, appeared in Issue 3. Hershel Markovitz kindly provided us with his plenary lecture at the Seventh International Congress on Rheology on the topic "Boltzmann and the Beginnings of Linear Viscoelasticity."

Raymond R. Myers
 Editor

1978 TREASURER'S ESTIMATE

Estimated Balance in Account January 1, 1978		\$15,000.00
RECEIPTS		
Dues 1977 & 1978	\$12,000.00	
Interest Savings Certificate and Savings Account	1,000.00	
Income, Short Course	2,500.00	
Transactions Page Charges	3,600.00	
Annual Meeting	500.00	\$19,200.00
Net Receipts		<u>\$34,200.00</u>
DISBURSEMENTS		
Charges for dues, billing & collection (\$1.23/item billed)	1,100.00	
Charges for prep. & maintenance of member record file (\$1.50/member)	1,400.00	
Financial Handling Charge (5/8 of 1% of business handled)	250.00	
Member Society Dues \$1/member	900.00	
Editorial Expenses and Postage	1,200.00	
Transactions SOR	5,700.00	
Subscription Expenses	1,700.00	
Spring Bulletin	400.00	
Summer Bulletin	400.00	
Fall Bulletin & Meeting Abstracts	1,200.00	
Short Course, Mailing & Expenses	1,900.00	
Administrative Services	1,200.00	
Miscellaneous	650.00	
New Roster	600.00	
50th Anniversary Booklet	250.00	
Net Disbursements		<u>\$18,850.00</u>
Estimated Balance, December 31, 1978		<u>\$15,350.00</u>

Respectively Submitted
 Edward A. Collins
 Treasurer
 October 20, 1977

OTHER MEETINGS

IUTAM Symposium on Non-Newtonian Fluid Mechanics

Place: Louvain-la-Neuve, Belgium
 Date: 28 August - 1 September 1978
 Chairman: M. J. Crochet
 Université Catholique de Louvain
 Place du Levant, 2
 B-1348 Louvain-la-Neuve
 Belgium

IUTAM Symposium on Metal Forming Plasticity

Place: Tutzing (near Munich), BRD
 Date: 28 August - 3 September 1978
 Chairman: H. Lippmann
 Lehrstuhl A für Mechanik
 Technische Universität
 Postfach 20 24 20
 D-8000 München 2, BRD

ANNOUNCEMENTS

Professor Emeritus Alfred M. Freudenthal died on September 27, 1977. He was a member of the National Academy of Engineering.

Proceedings of the VIIth International Congress on Rheology, August 23-27, 1976 held in Gothenburg, Sweden are available from the Swedish Society of Rheology, c/o Dr. C. Klason, Dept. of Polymeric Materials, Chalmers University of Technology, S-402 20 Gothenburg, Sweden.

Anyone interested in purchasing TSOR Volumes V

(1961) to date, plus Volume I and Volume 7 #3 June 1952 Rheology issue of J. Colloid Science and Part 2 of Proceedings of the 4th International Congress on Rheology, August 1963, should contact George M. Powell III, 2114 Glenfield Terrace, South Charleston, WV 25303.

Anyone who has any information, pictures, or memorabilia that will help in preparation of a history of The Society of Rheology should contact J. R. Knox, Amoco Chemical Corporation, P. O. Box 400, Naperville, Illinois 60540. R. Marvin and H. Markovitz also on committee.

Summer Rheology and Coatings Programs
 Kent State University
 June 26-30, 1976

Applied Rheology for Industrial Chemists

Lectures will be presented on 18 subjects related to rheology, kinematics and dynamics, dispersion, interfacial and polymer rheology. Discussion will be divided between principles and application.

July 24-28, 1978

Coatings and Polymer Characterization Conference

Lectures will discuss the use of many instruments for the characterization of coatings and polymers, interpretation of data and introduction to new analytical methods.

Additional information on both programs can be obtained by contacting Carl J. Knauss, Chemistry Department, Kent State University, Kent, Ohio 44242.

Application for Membership in the SOCIETY OF RHEOLOGY

I hereby desire to apply for membership in THE SOCIETY OF RHEOLOGY dating from
 January 19.....

Name
 (Please print)

Mail Address

Professional Affiliation

Position

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

- PRIMARY
 SECONDARY
 TERTIARY

INTEREST AREA	CODE
Biological Materials	A
Foods and Natural Products	B
Inorganic Materials	C
Oils and Lubricants	D
Soils	E
Synthetic Polymers	F
Fluids (Including Solutions)	G
Solids	H
Suspension and Particulate Systems	J
Engineering	K
Experimental Techniques	L
Mechanics	M
Phenomenology	N
All of the above	Y
None of the above	Z

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

.....
 Signature Date

Enclose remittance of \$15 for Regular Annual Dues or \$100 for Sustaining Annual Dues and mail to:

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

