

The News and Information Publication of The Society of Rheology  
Volume 80 Number 1 January 2011

# Rheology Bulletin



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Record-Breaking 82<sup>nd</sup> Annual Meeting of the SOR

Just What *Did* Deborah Say? by Morton Denn

Notable Passing: 1991 Bingham Medalist Louis Zapas



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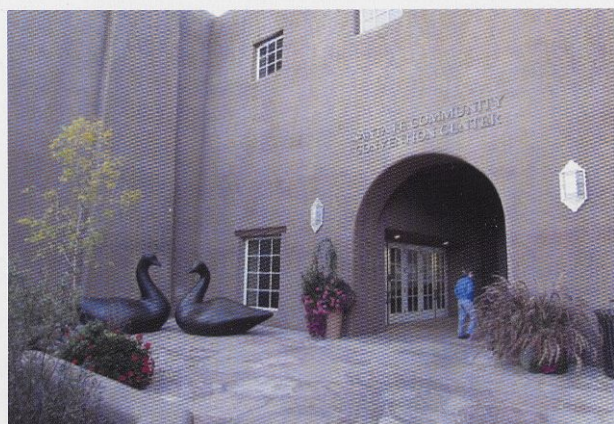
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The Santa Fe Convention Center welcomed a record number of rheologists to the 82<sup>nd</sup> Annual Meeting of the Society of Rheology. For a complete report, see page 4.



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Letters to the editor: [rheology@aip.org](mailto:rheology@aip.org).

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# Santa Fe!

## 82<sup>nd</sup> Annual Meeting of The Society of Rheology

### Another record-breaking meeting for The Society of Rheology.

In 2010 and for the second time, the annual gathering of the Society of Rheology was hosted in Santa Fe, New Mexico, the lovely artist community and state capital at 2100 m (7200 ft) above sea level. Local Arrangements were handled by Andy Kraynik from Sandia National Labs. The meeting registration total was 505, a new record, the second record attendance in a row. The technical program in Santa Fe was the work of Greg McKenna (Texas Tech University) and Saad Khan (North Carolina State University) and marked the first time six parallel sessions were held. The phenomenal success of the 82<sup>nd</sup> Annual SOR meeting, even in these tough economic times, bodes well for the future of rheology.

As usual, the annual meeting kicked off with short courses the weekend before. There were two Santa Fe short courses, a two-day course on "Colloidal Dispersion Rheology" by Jan Mewis (Katholieke Universiteit Leuven, Belgium) and Norman Wagner (University of Delaware, USA) and a one-day course on "Mi-



2010 Bingham Medalist Tom McLeish shows off the award he has just received from SOR President Faith Morrison.

crorheology: Theory, Practice and Applications" given by Eric M. Furst (University of Delaware USA), Patrick S. Doyle (Massachusetts Institute of Technology, USA), and Patrick T. Spicer (Procter and Gamble). Both courses had full enrollments.

The Sunday opening reception took place at the Eldorado Hotel and was hosted by TA Instruments. The Eldorado was a spectacular venue for this extravagant start to the meeting. The sessions during the week included 284 talks and 93 posters as well as plenary presentations by Kenneth S. Schweizer (Northwestern University, USA), Julia Kornfield (California Institute of Technology, USA), and 2010 Bingham medalist Tom McLeish (Durham University, UK).

The social program for the Santa Fe meeting included a Monday reception sponsored by Malvern Instruments at the New Mexico History Museum. Guests had full run of the museum, which includes the Palace of the Governors, an adobe structure built in 1610 and located on the Plaza of Santa Fe. The Tuesday Awards Reception at La Fonda on the Plaza preceded the Awards Banquet (described below) and was sponsored by Xpansion



The beginning of a tradition: In Santa Fe, 2010 Metzner Awardee Suzanne Fielding with 2009 Metzner Awardee Jonathan Rothstein.



The many receptions in Santa Fe were in spectacular venues. The meeting opened with a reception at the Eldorado.



Instruments. The poster session took place on Wednesday evening and included a reception sponsored by Anton Paar USA. All registrants were treated to a 2GB USB data drive and a light tote bag through the generosity of Thermo Scientific. Other sponsors of the meeting included Sandia National Laboratories and Los Alamos National Laboratory.

The 2010 Awards Banquet was held at the historic La Fonda on the Plaza, and, in a first for an SOR meeting, the banquet was preceded by a dance performance. Reflecting the local heritage, banquet attendees enjoyed a 30 minute flamenco performance by Estampa Flamenca, from the Maria Benitez Institute for Spanish Arts (cover photo). The flamenco was phenomenal; the troupe included experienced dancers as well as young dance prodigies who had more recently joined the troupe. The dancers were accompanied by drum, guitar, and the soulful singing of their troupe leader.

The business portion of the banquet was hosted by SOR President Faith Morrison (Michigan Technological University, USA), who introduced *Journal of Rheology* Editor John Brady (California Institute of Technology, USA), chair of the selection committee for the *Journal* Publication Award. This committee consists of Editor Brady and two members of the Executive Committee, Ole Hassager (Technical University of Denmark) and Hiroshi Watanabe (Kyoto University, Japan). Brady announced the 2010 award selection of "A mode coupling theory for Brownian particles in homogeneous steady shear flow," by Matthias Fuchs (Universität Konstanz, Germany) and Michael E. Cates (University of Edinburgh, UK), which appeared in the *Journal of Rheology* in 2009 (volume 53, pages 957-1000). Electronic access

to this paper and to all other *Journal* Publication Award papers is open to all at no cost ([www.journal-of-rheology.org/](http://www.journal-of-rheology.org/))

The Society's newest recognition, the Arthur B. Metzner Early Career Award, was presented for the second time in 2010. The Metzner award is given to a younger member of the Society for distinguished contribu-

tions to rheology. Receiving the Metzner award in 2010 was Suzanne Fielding (Durham University, UK). Fielding was cited most particularly for her seminal paper on glassy rheology and glassy dynamics, which appeared in the *Journal of Rheology* in 2000 (Aging and rheology in soft materials, S. M. Fielding, P. Sollich, and M. E. Cates, *J. Rheol.* 44, 323 (2000)).

As is the tradition, the main event of the Awards Banquet was the presentation of the Bingham Medal, which went to Tom McLeish, currently Pro-Vice-Chancellor of Research at the University of Durham in the UK. The nomination materials for McLeish cite his many contributions to the understanding of polymer relaxation and his proven ability to work with a wide variety of collaborators both in rheology and outside of rheology. During the Bingham lecture earlier in the day McLeish shared with the audience tales of the surprising analogies between Rouse dynamics and certain magnetic phenomena. In a roast notable for the prominence of a certain baby carriage *a.k.a. pram* story, McLeish-collaborator Ron Larson (University of Michigan, USA) made sure that McLeish did not escape the traditional roasting of the Bingham recipient.

On the penultimate day of the meeting, the Society holds a poster session, which was co-chaired in 2010 by Anne Grillet (Sandia National Labs, USA) and Ali Mohraz (University of California, Irvine, USA). The poster session included dozens of presentations, a reception hosted by Anton Paar USA, and the awarding of the Student and Postdoctoral Researcher Poster Prizes. The presentations recognized in the Poster Competition are selected from entries submitted in electronic format be-

(continues page 16)



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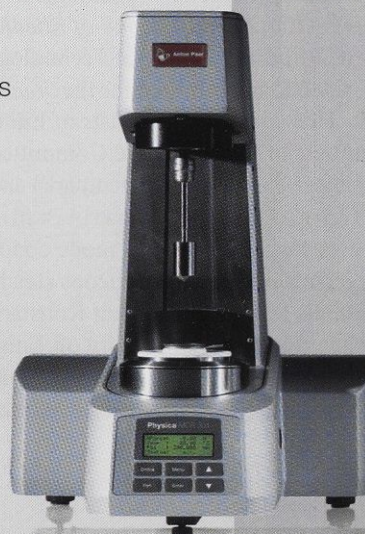
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## An Interview with the Technical Program Chairs

The *Rheology Bulletin* interviewed the Santa Fe Technical Program Co-Chairs (TPC), Saad Khan (SK) and Greg McKenna (GM), to getting a meeting report from the point of view of the technical sessions.

*RB: How did you pick the session titles?*

TPC: We passed ideas back and forth and came to a common agreement. Ideas came from trying to look at both past meetings and areas that we thought were new and should be areas for expansion of rheology. We wanted to keep the traditionally strong and well attended sessions (for example suspensions) and interject them with some new areas.

*RB: What was the most popular topic? Did you see that coming?*

GM: The most popular were Suspensions, Colloids and Emulsions and Polymer Rheology: Melts, Solutions and Blends. I think this could have been anticipated, though we were a bit surprised by the overall size of the meeting, which made these two take up a considerable amount of space.

*RB: What was unpopular? Was that a surprise?*

GM: I do not think any were "unpopular" though the Rheology of Natural Materials: Biorheology and Food Rheology session had only 12 papers. This is generally a hard area to recruit to the SOR.

Also, I thought that there was a record number of papers in the session on Rheology and Flow of Glass-like Materials, which was very positive. We tried some different things and got pretty good attendance at multiple sessions beyond the three big ones already mentioned.

SK: The Food and Biorheology session was the smallest. This seems to be the case always in the SOR meeting. However, when ETH hosts the Food Rheology and Microstructure Conference once every 3 years, it is very well attended. I think we need to get the food/biorheologists more engaged in SOR – there are quite a few, and

very few come to SOR.

*RB: Why do you think were there a record number of papers and attendees in Santa Fe?*

TPC: Great location and local organization as well as a lot of enthusiasm from our Technical Program Session Organizers...they did a great job. The Technical Session Chairs were proactive and sent out group emails that sure helped.

*RB: Could you please comment on industrial participation? Was it sufficient? if not, what can be done to increase industrial participation at SOR?*

GM: About 11% of papers had at least one industrial author. This is not unusual in scientific (vs. technical or trade) conferences. The SOR seems to have a reason-

able industrial participation and one might ask if US industry is up to the standards of the Society if they can't or choose not to participate. Or one might ask is there much US industry left that invests in fundamental engineering sciences?

SK: With the present budgetary climate, it is hard for industrial members to attend. In

addition, to justify coming to meetings, they need to present, and the

work they do may be proprietary or not sufficiently in-depth for SOR.

*RB: What words of wisdom do you wish to pass on to future program chairs?*

GM: Make sure you enjoy it and think of the meshing of the old and the new as you build your program.

SK: Be careful about last minute cancellations! There will be participants who will inform you at the very last minute. So, have some backup papers, perhaps from the poster session. We also had some invited speakers –



Plenary speaker Julie Kornfield from CalTech is flanked by the Technical Program Co-Chairs from the Santa Fe Meeting, Saad Khan (North Carolina State University) and Greg McKenna (Texas Tech University).

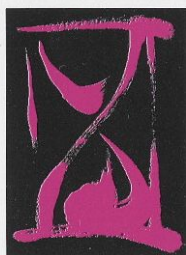
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# Cleveland ROCKS!

*Hi Rheology enthusiasts! It's time to start thinking CLEVELAND!*

Yes, our next meeting is being held in the lively city of Cleveland, OH USA during the week of 7-13 October 2011. The technical program will take place in the modern Intercontinental Hotel and Conference Center, just minutes from Case Western Reserve University, the Cleveland Clinic, and down-



town Cleveland. Boasting more than 50 scholarly institutions within a three-mile radius of the University Circle area, ranging from the beautiful Cleveland Botanical Garden to the Cleveland Museum of Art, SOR attendees will find something for everyone, should they want to escape momentarily from the technical sessions. For the evenings, an exciting social program is planned

and is designed to give attendees and their significant others a fun and intellectually stimulating experience ... stay tuned for details!

Cleveland is easy to get to, with Cleveland Hopkins International Airport serving as a hub for Continental Airlines, along with service for most major airlines. From the airport, you will be able to take a quick cab or cost-effective train to the Intercontinental Hotel and Conference Center. What weather should you expect? Octobers in Cleveland are beautiful with the onset of autumn and associated foliage color changes, temperatures hovering the "nippy" range of 50-55 °F (10 – 13 °C) – so plan to bring sweaters and jackets.



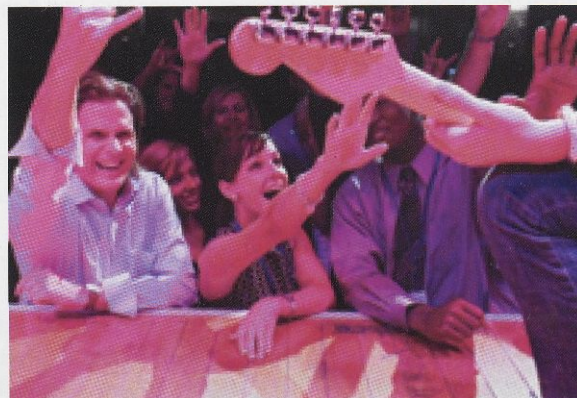
## 83<sup>rd</sup> Annual Meeting of The Society of Rheology Cleveland, Ohio USA 7-13 October 2011

To have an online peek at Cleveland, I recommend the following two websites for the entire area and University Circle, respectively.

[www.positivelycleveland.com/](http://www.positivelycleveland.com/)  
[www.universitycircle.org/](http://www.universitycircle.org/)

Respectfully Submitted,

Pat Mather  
Local Arrangements Chair, SOR 2011  
[ptmather@syr.edu](mailto:ptmather@syr.edu)



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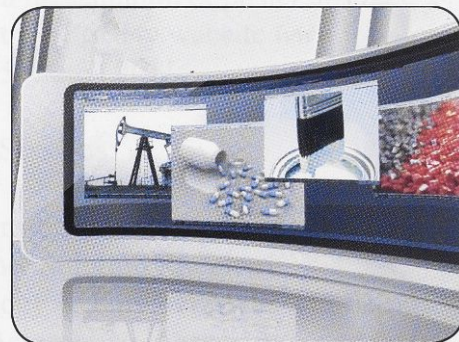
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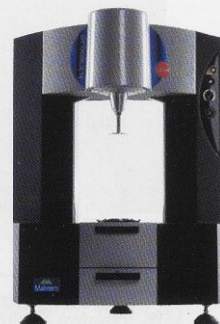
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# 83<sup>rd</sup> Annual Meeting of The Society of Rheology

Cleveland, Ohio USA  
7-13 October 2011

Technical Program Chairs:

Jonathan Rothstein  
University of Massachusetts  
Departments of Mechanical & Industrial  
Engineering  
160 Governors Drive  
Amherst, MA 01003  
(413) 577-0110  
*rothstein@ecs.umass.edu*

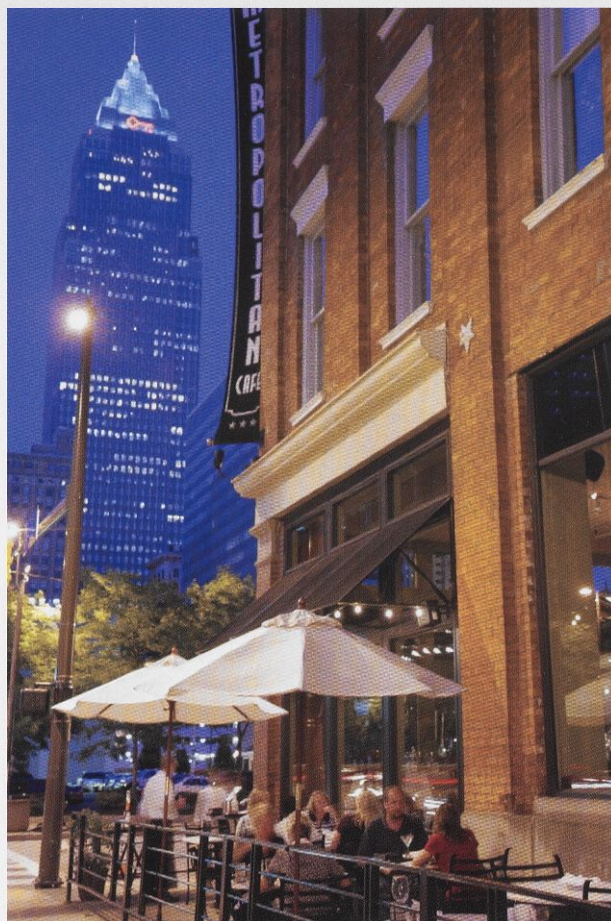
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(404) 894-5134  
*victor.breedveld@chbe.gatech.edu*

Plenary Lectures:

Juan dePablo (Department of Chemical Engineering, University of Wisconsin - Madison)

David Pine (Department of Physics and Center for Soft Matter Research, New York University)

Details of the members of the  
Technical Program Committee will  
appear on the Society website, [www.rheology.org](http://www.rheology.org) in early 2011.



Photos courtesy of (c)www.positivelycleveland.com

To submit a presentation or poster abstract,  
please visit the Society website [www.rheology.org](http://www.rheology.org)  
after 15 March 2011.

Technical Sessions:

- 1) Suspensions, Colloids and Emulsions
- 2) Polymer Solution Rheology
- 3) Rheology of Polymer Melts and Blends
- 4) Self-Assembling, Associative, and Gel-like Systems
- 5) Computational Rheology
- 6) Surface and Interfacial Rheology
- 7) Microfluidics, Microrheology and Confined Systems
- 8) Rheology of Solids, Glasses and Composites
- 9) Rheology in Biological Systems
- 10) Non-Newtonian Flows and Stability
- 11) Industrial Rheology



# Just what *did* Deborah say?

Morton M. Denn

The City College of New York USA

The Deborah number, defined as the ratio of the characteristic response time of a material to the process time, has been a key concept in rheology since it was introduced by Markus Reiner in an after dinner talk at the Fourth International Congress on Rheology in 1963 [1, 2, 3; additional references may be found in 4]. Reiner quoted, in English translation, from verse 5:5 of the Biblical Book of Judges (*Shoftim*), in which Deborah and Barak celebrate a decisive victory over the army of the Canaanite Sisera:

*the mountains flowed before the Lord*

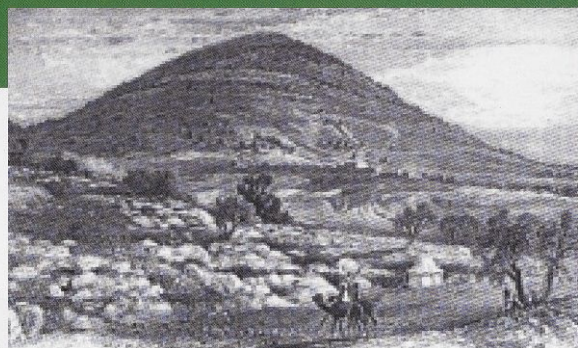
Reiner wished to indicate that material time scales are relative, and that even mountains flow on a cosmic scale. But speakers of English who consult an English-language Bible are not likely to find this text. As Reiner noted, the historic *King James Bible* (1611) renders the phrase as “The mountains *melted* from before the Lord;” the Jewish *Stone Tanach* and the Roman Catholic *Douay-Rheims Bible* also have the mountains melting. The Jewish Publication Society’s *Tanach* (1917) contains “The mountains *quaked* at the presence of the Lord,” as does the *New American Standard Bible* (1995). Neither melted nor quaked, especially the latter, conveys the notion of flow intended by Reiner, although that sense is present in the 1885 *English Revised Version*, with “The mountains *flowed down* at the presence of the Lord,” and in Young’s 1862 *Literal Translation* as “Hills *flowed* from the face of Jehovah.” Thomas F. McDaniel’s scholarly textual analysis of the poem [5], in which he translates the verse as “the waters of the mountains flowed,” includes an appendix with ten translations from Hebrew to English carried out between 1888 and 1995, some of which use words that indicate flow, others words that indicate quaking. So just what *did* Deborah say in her exultant song of victory?

The Hebrew text, which is read from right to left, is

הָרִים נָזְלוּ מִפְּנֵי יְהוָה

Three of the four words are unambiguous. The last consists of the four letters of the name of God, often written in Latin characters as YHVH, which is the source of the English *Jehovah* and the less common *Yahweh*. YHVH is not pronounced in traditional Judaism and is generally replaced verbally by *Adonai*, which translates as Lord; this replacement is employed in most English translations of the Bible, both Christian and Jewish, although the *Stone Tanach* employs *Hashem*, which literally

Mount Tabor. Did it flow?  
(Source: J. W. McGarvey,  
*Lands of the Bible* (1881))



means “the Name,” and some Christian Bibles use *Jehovah*. The first word of the phrase means “mountains,” and all translations of the third word – “at the presence of,” “before the face of,” etc. – are essentially equivalent. The problematic word is the second, phonetically *nazlu*.

In Modern Hebrew, which Reiner spoke, *nazlu* indeed means “flowed.” Modern Hebrew words sometimes have different meanings from their usage in Biblical Hebrew, however, and we might suspect such to be the case here in view of four hundred years of translations, starting with the *King James Bible* and continuing to the present. But a change in meaning does not appear to be the problem; the root NZL clearly means *to flow* in Biblical Hebrew [6,7], and the question of meaning long predates the translations into English. The Fourth Century Latin Vulgate, which is an early translation from the Hebrew, uses flowed: “montes fluxerunt a facie Domini.” The Targum Yonaton (Jonathon), an Aramaic translation from the Hebrew that probably dates to the First Century, uses a verb that means *shook* or *quaked*. There is only one other use of the specific form *nazlu* in the Bible, in Isaiah 63:19 and 64:2, where precisely the same differences are found in English translations.

One reading of the text is facilitated by referring to the preceding verse 5:4, which in the *King James* version ends with “the clouds also dropped water;” other translations are equivalent, some referring to torrential rain. This can lead to the image of raging waters and mud flowing down the mountain following the rain storm, hence “the mountains flowed” in verse 5:5, which is then related to the flooding of the Wadi Kishon in verse 5:21. (The skies are also opened in Isaiah 63:19.)

The authoritative medieval French scholar and great Hebrew grammarian Rashi commented on the meaning of the Hebrew phrase with (from A. J. Rosenberg’s translation) “Like flowing water (*nozlim*) they melted away.” The plural noun form *nozlim* occurs seven times in the Bible, the first in Exodus 15:8, and the meaning is consistently *flowing water*. This commentary may be the source of the use of “melted” by the *King James* translators, whose notes give the Hebrew as “flowed” and who were certainly aware of Rashi’s commentary.

(continues page 15)



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The co-authors on the BKZ model: Louis Zapas, Elliot Kearsley, and Barry Bernstein, ca. 1991.

## Louis John Zapas

18 July 1922 - 25 October 2010

Louis John Zapas was born in Wheeling, WV, in 1922 to Greek immigrants. His father, John Zapas, was a native of Mesta, Chios, who immigrated to the US, established a bakery in Wheeling, and married Zoe Kostambari. After John and Zoe both died prematurely from tuberculosis, Louis was left to the care of John's brother, George and his wife Sophia. Thus, at the tender age of four, Louis went to live with his aunt and uncle in Alexandria, Egypt, where he spent the bulk of his childhood.

Louis experienced extreme poverty prior to the German occupation (KATOXH) of Greece at the beginnings of World War II as the family moved back to the small village of Mesta on the island of Chios. As a young adult he found himself in a concentration camp after having tried to escape the German occupation in a row boat to Turkey. After the war, Louis returned to America on a refugee, over-crowded troop ship where he learned what the word "hot dog" meant and realized that his now native Greek language and that of his land of birth were not identical. Although he had started his education at the Polytechnic of Athens, the return to the US allowed him to complete his education where he received an MS in Chemical Engineering at the University of Pittsburgh in 1949. During this time he was offered the chance to take a doctorate in classical Greek, which he chose to forgo for the opportunity to work in the sciences and engineering.

Upon completion of his MS, Louis joined the Mellon Institute—at a time when it was bursting with scien-

tific activity in the exploding fields of polymer science and rheology. From 1957 to 1961 he worked at the Washington Research Center of WR Grace and Company before being recruited in 1961 by Robert S. Marvin to the Rheology Section of the Institute of Basic Standards at the National Bureau of Standards (NBS) in Washington, DC. It was here, during the subsequent two years, that he and colleagues Barry Bernstein and Elliot Kearsley developed the now widely recognized BKZ theory of a perfect elastic fluid. Louis remained at the NBS through the move from Van Ness St. in

the District of Columbia to a new site on an old sheep farm in the Washington suburb of Gaithersburg, Maryland, in the late 1960s, and through the change in name to the National Institute of Standards and Technology (NIST) in 1988. He retired from NIST in 1991, having made very significant contributions to the institution's scientific reputation in polymers and rheology.

In 1991 Louis J. Zapas received the Bingham Medal of the Society, one of the proudest of his many achievements or awards. The citation referred to his "extraordinary contributions to the field of rheology, especially in the development and testing of the BKZ constitutive equation." The latter experimental methods have had continuing impact in the field as they were widely used in the evaluation of the Doi-Edwards Tube model of reptation and they continue to be used in investigations of flow of polymeric fluids. Perhaps one of the most telling appreciations of the quality of the work of Louis Zapas is the paper by R.I. Tanner entitled "From A to B(KZ) in Constitutive Relations" that appeared in the *JOR* in 1988 in conjunction with a talk of similar title given at the 1987 Annual Meeting of the Society at a symposium honoring the 25<sup>th</sup> anniversary of the BKZ theory. (For those who are wondering: the famous BKZ paper was presented at the 1962 meeting held at Johns Hopkins University and published in the *Transactions of the Society of Rheology* in 1963).

In addition to his technical work, Louis also made his mark in the Society of Rheology in other ways. He was an enthusiastic participant in meetings, a leader in discussions, and a generous mentor to the younger generation of scientists/rheologists. He also defended the Society as a forum of excellence and participated in a way that helped form the Society of today.

On the personal side, Louis married Evangelia Moutmtzi in Athens, Greece in September 1963. They moved to Washington, DC shortly after the wedding. In 1967, they



welcomed a son, John, and moved to Silver Spring, MD. Louis also had many pursuits and interests outside of his professional life. He enjoyed sports and when young participated actively; he was an invariably good person to find for lively political discussions, and his appreciation of good food was well known – perhaps the ‘anti-banquet’ at the International Congress on Rheology in Lyon captured this when Louis and a group went to Paul Bocuse. Louis was also an accomplished painter and sculptor. After his retirement, Louis dedicated himself to his painting and travels with his wife, Evangelia. He enjoyed painting landscapes of Greece and his grandchildren. It was clear to anyone who may have met Louis that he was a dedicated husband, father, and papou who took extreme pride in his family.

Louis J. Zapas was a passionate man. He embodied pathos reminiscent of ancient Greek tragedy. Because of his life trials and tribulations, personally surviving tuberculosis and severe viral hepatitis as a youth where he was displayed as an example for medical students at the Lutheran hospital in Baltimore, working as a dishwasher in Pittsburgh as a college student and sending money to

his adoptive parents in Greece, and quadruple cardiac bypass surgery in 1989, he truly lived life as if every day would be his last...in fact, though, he outlived the expectations of his medical overseers by nearly forty years. Louis Zapas captured the essence of the word “meraklis.” His fun-loving nature was infectious to those around him. Friends and family knew that he loved good company, good food and a good zeimbekiko. Both literally and metaphorically, there was no question as to if he would dance, only as to when and how long.

Louis John Zapas died on the morning of 25 October 2010 after a prolonged battle with respiratory illness. He was fortunate to have his family and friends nearby and was able to face death without much suffering. He is survived by his wife Evangelia, his son and daughter-in-law John and Debbie, and his three grandchildren Ellis, Patricia, and Gregory. He will be missed by all.

Greg McKenna  
John Zapas



The Society of Rheology was founded in 1929 to foster the study of the mechanical properties of deformable materials. SOR is a founding member of the American Institute of Physics.  
Visit our web site [www.rheology.org/sor/](http://www.rheology.org/sor/)

(continued from page 12)

Rashi takes a metaphorical view of verse 5:4 and does not suggest a torrent or a mud slide.

The alternative translation, *shook* or *quaked*, comes from a different grammatical understanding of *nazlu*, which takes it as unrelated to NZL, but rather as the “niphāl” verb form, requiring a prefix N, of the verb ZLL, *to tremble, to shake*. This is the basis for the Targum Yonaton translation and is the position taken by Gesenius [6] for the particular text at hand. This reading is rejected by McDaniel [5] and is inconsistent with Rashi’s understanding of the text.

Hence, the most straightforward reading of the text is that water or mud from the rain is pouring down the mountain and causing flash floods, entrapping Sisera’s chariots, which is consistent with Reiner’s translation but inconsistent with his cosmic view. The grammar permits a mountain that flowed or a mountain that quaked, so the choice is ultimately based on one’s image of the event and notions of natural law. Rheologists may therefore comfortably use Reiner’s translation with the knowledge that no less an authority than Rashi relates *nazlu* to flowing water, *nozlim*.

I am grateful to Stephen Rosenberg for reminding me of the significance of verse 5:4 to this discussion, and to Laura Roumani for bringing the book by McDaniel to my attention. I have long been interested in the question of the proper translation of this passage – my 1980 book *Process Fluid Mechanics* equivocates with “The mountains quaked (sometimes translated ‘flowed’) at the presence of the Lord” – and I was finally motivated to seek a resolution in preparation for a series of lectures on rheology in the Casali Institute of Applied Chemistry of the Hebrew University of Jerusalem in the spring of 2010, where I was a Lady Davis Visiting Professor.

#### References

1. M. Reiner, “The Deborah Number,” *Physics Today*, 17:1, 62 (January, 1964)
2. A. B. Metzner, J. L. White, and M. M. Denn, “Constitutive Equations for Viscoelastic Fluids for Short Deformation Periods and for Rapidly Changing Flows: Significance of the Deborah Number, *AIChE Journal*, 12, 863 (1966)
3. A. B. Metzner, J. L. White, and M. M. Denn, “Behavior of Viscoelastic Materials in Short-Time Processes,” *Chemical Engineering Progress*, 62:12, 81 (December, 1966)
4. J. M. Dealy, “Weissenberg and Deborah Numbers – Their Use,” *Rheology Bulletin*, 79:2, 14 (July, 2010).
5. T. F. McDaniel. *The Song of Deborah: Poetry in Dialect*, 2003, available online at [tmcDaniel.palmerseminary.edu/](http://tmcDaniel.palmerseminary.edu/).
6. H. W. F. Gesenius, *Hebrew-Chaldee Lexicon to the Old Testament*, 1847. Available online at [www.tyndalearchive.com/tabs/Gesenius/](http://www.tyndalearchive.com/tabs/Gesenius/)
7. F. Brown, S. R. Driver, and C. A. Briggs, *Hebrew and English Lexicon of the Old Testament based on the Lexicon of William Gesenius as translated by Edward Robinson*, Clarendon Press, Oxford, 1906; corrected reprint 1951.



(continued from page 5)

Bingham medalists in attendance in Santa Fe included (back row) Ron Larson, Gary Leal, Greg McKenna, Gerry Fuller, John Dealy, John Brady, Mort Denn, (front row) Jan Mewis, Andy Achivos, Tom McLeish, Henning Winter, and Chris Macosko.



fore the meeting, which are then judged by a committee during the event. Three student prizes and two post-doctoral research prizes were awarded. In 2010 the prizes went to Darlene I. Santiago-Quinonez (1<sup>st</sup> Place, University of Puerto Rico), Eric B. Webb (2<sup>nd</sup> Place, Colorado School of Mines, USA), and A. Kate Gurnon (3<sup>rd</sup> Place, University of Delaware, USA). In the postdoctoral contest, those recognized were Damien C. Vadillo (1<sup>st</sup> Place, University of Cambridge, UK) and James W. Swan (2<sup>nd</sup> Place, California Institute of Technology, USA). The titles of the contributions and the names of the collaborators are listed on the Society's website at [www.rheology.org/sor/awards/](http://www.rheology.org/sor/awards/).

The next annual meeting of The Society of Rheology is scheduled for October 9-13, 2011 in Cleveland, Ohio, the home of the Rock and Roll Hall of Fame, the world-class Cleveland Orchestra and Cleveland Clinic, and Midwest sports favorites the Cleveland Indians, Browns, and Cavaliers. Our host in Cleveland will be Patrick Mather (Syracuse University, USA) and colleagues from Case Western Reserve University. The technical pro-



The rheological instruments manufacturers were well represented in Santa Fe, including Martin Sentmanant (Xpansion Instruments), David Jacobson (TA Instruments), and David Bohnsack (TA Instruments).



Poster contest winners are pictured with Society President Faith Morrison. From left to right: Morrison, Darlene Santiago-Quinonez, Eric Webb, James Swan, Damien Vadillo, and A. Kate Gurnon.

gram in Cleveland is chaired by Jonathan Rothstein (University of Massachusetts, USA) and Victor Breedveld (Georgia Institute of Technology, USA). More on the Cleveland meeting and on the technical program in Cleveland may be found in this *Bulletin* (page 11). More photos from the Santa Fe meeting are printed on page 23 of this *Bulletin*.







# New *Journal of Rheology* Website Features Greater Functionality

Paul Lurie  
*American Institute of Physics*

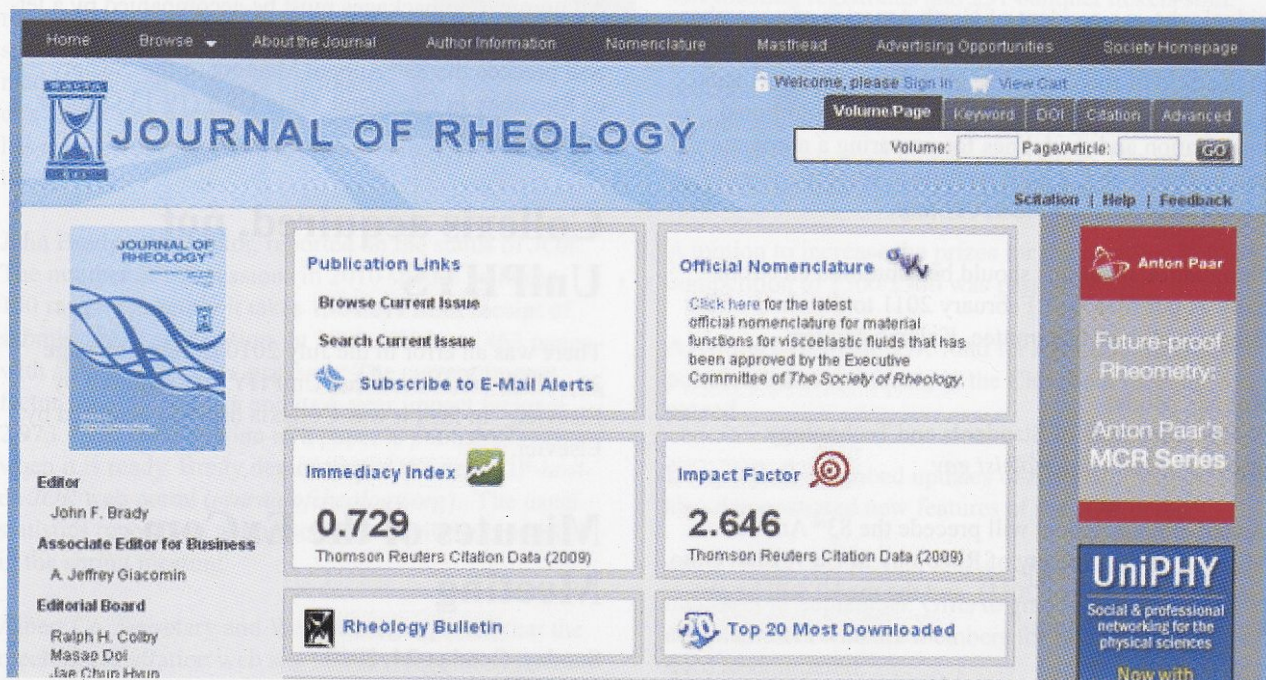
## Change has come to the online-JOR.

Researchers will find the functionality of the *Journal of Rheology*'s (JOR) new website ([journalofrheology.org](http://journalofrheology.org)) greatly enhanced. One of the many new features is full-

text HTML rendering, direct from XML. Through inline reference links and the ability to enlarge tables and figures by clicking on them, JOR articles virtually lift off the page in a highly interactive presentation that transforms the traditional scholarly article, helping to speed reading and research. Among the new features are enhanced search functions, with more options and better controls

to explore returned content with faceted results. Faceted search helps researchers find information quickly by presenting them with a set of filters to narrow down search results.

To further facilitate discovery, JOR Tables of Contents



text HTML rendering, direct from XML. Through inline reference links and the ability to enlarge tables and figures by clicking on them, JOR articles virtually lift off the page in a highly interactive presentation that transforms the traditional scholarly article, helping to speed reading and research. Among the new features are enhanced search functions, with more options and better controls

bring more information to the forefront and create functionality that allows users to work with journal data in new ways. These "Smart ToCs" enable researchers to harvest citations, preview abstracts with a mouse click, and hide content that is not of interest. In addition, a new table browser allows subscribers to view all tables and figures in an article directly from the abstract.

Check it out. Take it out for a spin. Let us know how it rides.





## NEWS

### Bingham Award 2011 Nominations Sought

Nominations are invited for the 2011 Bingham Award of The Society of Rheology.

The Bingham Award is presented annually to an individual who is a resident of North America or a member of the Society who has made outstanding contributions to the field of rheology. The award consists of a medal, a certificate, and a \$10,000 honorarium. Additional information and guidelines for preparing a nomination can be found on the SOR website at [www.rheology.org/sor/awards/Bingham/nom2011.htm](http://www.rheology.org/sor/awards/Bingham/nom2011.htm).

Nomination materials should be submitted electronically as pdf files by 1 February 2011 to the chair of the Bingham Award Committee, Kalman Migler:

Kalman Migler  
National Institute of Standards and Technology  
email: [kalman.migler@nist.gov](mailto:kalman.migler@nist.gov)

Award announcement will precede the 83<sup>rd</sup> Annual Meeting of the Society of Rheology in Cleveland, Ohio USA (19-13 October 2011), and the medal will be presented at that meeting.

### Nominations Sought for Third Metzner Early Career Award

Nominations are invited for the Metzner Award of The Society of Rheology.

The Metzner Early Career Award is given, at most annually, to a member of the Society who is younger than 35 (on January 15<sup>th</sup> of the year the award is to be given)

and has distinguished him/herself in rheological research, rheological practice, or service to rheology. The award consists of a plaque and a \$7,500 honorarium. Additional information and guidelines for preparing a nomination can be found on the SOR website at [www.rheology.org/sor/awards/Metzner/nom2011.htm](http://www.rheology.org/sor/awards/Metzner/nom2011.htm).

Nomination materials should be submitted electronically as pdf files by 1 February 2011 to the chair of the Metzner Award Committee, Mike Solomon:

Mike Solomon  
University of Michigan  
email: [mjsolo@umich.edu](mailto:mjsolo@umich.edu)

All nomination packages must be accompanied by a letter of support from a nominator. Award announcement will precede the 83<sup>rd</sup> Annual Meeting of the Society of Rheology in Cleveland, Ohio USA (19-13 October 2011).

### Collexis acquired, not UniPHYS

There was an error in the July 2010 Bulletin on page 21, which announced that UniPHY was acquired by Elsevier. In fact, it was Collexis that was acquired by Elsevier.

### Minutes of the ExCom Meeting

Sunday, October 24, 2010  
Santa Fe, New Mexico

Attending: Faith Morrison, Jeffrey Giacomini, Albert Co, Monty Shaw, John Brady, Bob Prud'homme, Hiroshi Watanabe, Ole Hassager, Norm Wagner, Andy Kraynik, Gerry Fuller, Greg McKenna, Doreen Hall (AIP), Pat Mather, Paula Wood-Adams, Joao Maia, Jai Pathak, Steven Hudson, Mike Solomon, Shelley Anna.

President Faith Morrison called the meeting to order at 8:30 a.m. in Old House Tavern, Eldorado Hotel, Santa Fe, New Mexico USA.



The minutes of May 9, 2010 were read by Secretary Albert Co. A motion to approve the minutes was passed.

Monty Shaw reported on the financial status of the Society and *JOR*. Shaw and Fuller discussed the one-time fund of \$10,000 that the ExCom voted last year for the operating expenses of the International Committee.

Shaw reported that *JOR* was netting about \$100,000 and the ads were going well. Jeffrey Giacomini reported on the resolution of paper cost issue for *JOR* mentioned in the minutes of the spring meeting. Doreen Hall reported that AIP has recently gone to a new print vendor,

Sheridan Press. Shaw reported there were many fees that were scattered throughout the AIP documentation. Doreen Hall can help to straighten this out. Hall reported that the accounting system at AIP is changing and the relationship with AIP will be in the form of partnership. Shaw reviewed the numbers for SOR and some adjustments to the budget were made. A motion to accept the treasurer's report was passed. Giacomini commented that Shaw has done an excellent job as the treasurer; the Committee agreed.



John Brady, *JOR* Editor, reported on the status of *JOR*. The number of submissions in 2010 should be in the 150 range. Currently it takes 130 days from receipt of submission to publication. In 2009 *JOR* has 1463 pages, with around 250 pages per issue. The current impact factor for *JOR* is 2.646 and its 5-year impact factor is 2.973. Electronic version of a paper is published online when it is ready. Brady demonstrated the new AIP-hosted *JOR* web portal ([journalofrheology.org](http://journalofrheology.org)). The usual statistics report was not presented but will be presented in the spring meeting.

Albert Co, Secretary and Web Master, reported that the meeting registration web site had several new features. These included nicknames for the badges and second e-mail address for registration confirmation. Nonmember attendees needed to check two boxes to decline the complimentary memberships; six people did check the two boxes. For this meeting we have 181 new members. Students who registered were asked who their advisor is, degree sought, and expected graduation date; 144 students were registered. The student data will go to Shelley Anna and the Membership Committee.

Co asked if nonmembers come to register for a meeting but join at AIP for memberships of the following year,

should they pay member or nonmember registration fees? ExCom approved giving member rates to these individuals, even though it costs the Society money.

The upgrade of the member site is now pushed back to December; setting up new servers is in process. If anyone wants the zip file of the fully searchable *Bulletins*, Co can share it on request.

Gerry Fuller reported on ICR activities and International Outreach activities. Fuller went to Sweden as part of his activities as chair of the International Committee. In the past few years, Fuller has interacted with rheologists from India, Romania, Brazil and South Africa. Shaw suggested seeking other rheological societies as partners on international activities.

Andy Kraynik reported on updates of the Santa Fe meeting. The short courses were well attended: 31 registered for colloids; 21, for colloids plus microrheology; and 16, for microrheology. As of Sunday morning, there were 494 meeting registrants and 251 banquet tickets sold. Twelve exhibitors had signed up for the exhibit, with 17 booths and the *JOR* booth. This meeting had 6 parallel sessions. The morning coffee breaks were extended from 25 minutes to 35 minutes. The poster session layout was enhanced to improve viewer experience. The important roles of corporate sponsors were discussed.

A motion to increase the prizes for the post-doc poster competition to \$500/\$300 was passed.

A motion to provide \$3K fund for AIP-organized corporation/industrial forum in the Cleveland meeting was passed.

Doreen Hall described updates of AIP publications. Hall also demonstrated new features of the *JOR* portal.

Shelly Anna reported on membership. There were 1504 members in September. Gifts to graduating Ph.D. student members who are members for two or more years have been ordered.

Pat Mather reported on the 2011 Cleveland meeting. Options for social program were discussed. Morrison reported on the technical program for Jonathan Rothstein and Victor Breedveld. To include a lecture by the Metzner awardee in the technical program was discussed. It was not supported by ExCom at this time. Including more industrial participants as session chairs was discussed.

John Brady reported on the 2013 Winter Pasadena meeting. Brady is considering holding the Bingham banquet



at the Faculty Club in Caltech.

Paula Wood-Adams reported on the 2013 Montreal meeting. The layout of meeting rooms and options for social program were discussed.

Norm Wagner reported on the 2014 Philadelphia meeting. The layout of meeting rooms was discussed.

Joao Maia reported on ICR 2012 in Portugal. The congress website is up and running ([www.rheology-esr.org/ICR2012](http://www.rheology-esr.org/ICR2012)).

Jai Pathak and Steve Hudson presented a proposal to hold the 2015 Annual SOR meeting in Baltimore. Options for layout of meeting rooms and social program were discussed.

Hiroshi Watanabe reported on the progress of the planning of ICR 2016. The organizer will be decided at the Korea-Australia rheology meeting in October 2011.

Mike Solomon reported on the Education Committee. A motion to approve the Interfacial Rheology short course (Gerry Fuller, Jan Vermant, and Andy Kraynik) for the Cleveland meeting was passed.

A motion to fund the AIP-developed i-Phone/i-Pod app for JOR was passed. The annual maintenance fee is \$1800; Giacomini will circulate the document and coordinate with AIP.

The meeting entered into Executive Session at 4:50 p.m.

The meeting was adjourned at 5:05 p.m.

Submitted by Albert Co, Secretary.

## Minutes of the Business Meeting

Tuesday, 26 October 2010  
Santa Fe, New Mexico

President Faith Morrison called the meeting to order at 5:30 p.m. in Sweeney B, Santa Fe Convention Center, Santa Fe, New Mexico (60 in attendance). The minutes of the previous Business Meeting in Madison, Wisconsin were read by Secretary Albert Co and approved without addition or correction.

The officer reports and the committee reports presented

at the Executive Committee meeting (see minutes of Executive Committee meeting) were presented and accepted. Morrison recognized the exemplary work of Treasurer Monty Shaw.

Andy Kraynik, Chair of the Local Arrangement Committee, reported that the Santa Fe meeting had 505 registrants (the highest for an annual meeting). There were 262 banquet tickets sold and 13 exhibitors. The short courses were well attended: 31 registered for colloids; 21, for colloids plus microrheology; and 16, for microrheology.

John Brady demonstrated the features of the JOR portal ([journalofrheology.org](http://journalofrheology.org)) and announced the iPhone app to be developed by AIP. Jeffrey Giacomini will check with AIP to update the impact factor shown on the JOR portal.

*Rheology Bulletin* Editor Faith Morrison reported on the general articles in the *Bulletin*. The deadlines for articles are November 1st for the January issue and April 1st for the July issue. Volunteers to solicit articles are desired. The need for paper copies of the *Bulletin* was discussed.

Morton Denn, SOR representative to the American Institute of Physics (AIP), reported that AIP was seeking recommendations of people to serve on AIP committees. The Bingham Award Committee, chaired by Kalman Migler, and the Metzner Award Committee, chaired by Mike Solomon, are now seeking nominations for the 2011 awards. The nominating materials for both awards are due 1 February 2011 ([www.rheology.org/sor/awards/](http://www.rheology.org/sor/awards/)).

The Nominating Committee, chaired by Michael Mackay, is now seeking nominations of candidates for the 2011 Officer Election.

The meeting was adjourned at 6:31 p.m.  
Submitted by Albert Co, Secretary

## Treasurer's Report

To the membership:

Save for a few minor adjustments in the 2011 Budget, the tables adjacent depict the financial situation of The Society of Rheology as reported at the Annual Meeting in October.

Vanishingly low interest rates have essentially removed a major source of net income, and this situation is ex-





# Treasure's Report

pected to continue well into 2011. As a result, the budget for 2011 has little margin for unanticipated expenses. A major variable is the net for the Annual Meeting, which is budgeted to be zero. Hopefully the 83<sup>rd</sup> Annual Meeting (Cleveland) will be a huge success and keep the Society in the black. In response to the financial situa-

tion, the Executive Committee will begin discussions on cost reduction and revenue enhancement.

Respectfully submitted,

Montgomery T. Shaw,  
Treasurer

## The Society of Rheology, Inc. Balance Sheet

(all amounts, USD)	2010 August	2009 Year End	2009 August	2008 Year End	2008 August
<b>Assets</b>					
Cash in checking account(s)	87,882	18,330	61,234	10,859	310,962
Securities	0	0	0	0	0
Balance in AIP account	1,427,891	1,425,005	1,390,221	1,342,819	1,367,141
<b>Total Assets</b>	<b>1,515,773</b>	<b>1,443,335</b>	<b>1,451,455</b>	<b>1,353,678</b>	<b>1,678,103</b>
<b>Liabilities and Net Assets</b>					
<b>Liabilities</b>					
Deferred revenue	0	125,501	1,130	87,675	0
<b>Total Liabilities</b>	<b>0</b>	<b>125,501</b>	<b>1,130</b>	<b>87,675</b>	<b>0</b>
<b>Net Assets</b>					
Publication reserve	450,000	450,000	450,000	450,000	450,000
Student travel grant reserve	30,000	30,000	30,000	10,000	10,000
Annual Meeting reserve	300,000	300,000	300,000	300,000	300,000
Operating reserve	150,000	150,000	150,000	100,000	100,000
Unrestricted	585,773	387,834	520,325	406,003	818,103
<b>Total Net Assets</b>	<b>1,515,773</b>	<b>1,317,834</b>	<b>1,450,325</b>	<b>1,266,003</b>	<b>1,678,103</b>
<b>Total liabilities and net assets</b>	<b>1,515,773</b>	<b>1,443,335</b>	<b>1,451,455</b>	<b>1,353,678</b>	<b>1,678,103</b>

## Journal of Rheology Receipts and Disbursements (all amounts, USD)

	2011 Budget	2010 Projection	2010 August	2010 Budget	2009 Year End
<b>RECEIPTS</b>					
Subscriptions	165,000	159,992	158,982	172,000	174,199
Royalties & Reprint Sales	4,000	2,982	2,618	11,000	4,951
Ad Sales	43,000	48,055	36,722	39,000	39,198
JORO revenue	61,000	68,555	61,572	54,000	59,588
Miscellaneous	2,000	2,105	105	2,500	2,000
<b>TOTAL RECEIPTS</b>	<b>275,000</b>	<b>281,689</b>	<b>259,998</b>	<b>278,500</b>	<b>279,936</b>
<b>DISBURSEMENTS</b>					
Ads	10,000	11,824	9,315	11,000	9,990
Reprints, Single Copy	2,200	1,315	1,253	1,300	1,999
Paper, Printing	27,000	24,221	19,265	40,000	31,189
SOR Editorial	36,000	38,185	34,185	39,000	35,769
Production	39,000	36,537	24,358	41,000	39,208
Fulfillment	5,725	6,041	3,795	5,825	5,538
Distribution	22,700	21,231	14,115	28,800	24,899
Electronic publishing	41,000	38,511	26,746	38,000	35,595
Miscellaneous	8,500	5,962	3,151	7,600	6,863
<b>TOTAL DISBURSEMENTS</b>	<b>192,125</b>	<b>183,828</b>	<b>136,184</b>	<b>212,525</b>	<b>191,048</b>
<b>Net</b>	<b>82,875</b>	<b>97,861</b>	<b>123,814</b>	<b>65,975</b>	<b>88,888</b>



# Treasurer's Report

## The Society of Rheology

Receipts and  
Disbursements  
(all amounts, USD)

	<u>2011 Budget</u>	<u>2010 Projection</u>	<u>2010 August</u>	<u>2010 Budget</u>	<u>2009 Year End</u>
<b>RECEIPTS</b>					
Dues	49,000	47,995	47,149	48,000	51,355
Interest	5,000	1,800	1,567	6,000	5,716
Journal of Rheology	275,000	281,689	259,998	278,500	279,936
Mailing List Sales	300	465	0	100	465
Donations	0	0	0	0	0
Bulletin Advertising	10,000	9,257	8,100	9,000	10,400
Annual Meeting (net)	0	7,900	88,936	0	4,599
Short Course (net)	0	9,500	4,681	0	5,578
<b>TOTAL RECEIPTS</b>	<b>339,300</b>	<b>358,606</b>	<b>410,430</b>	<b>341,600</b>	<b>358,049</b>
<b>DISBURSEMENTS</b>					
AIP Dues Bill & Collect.	11,000	11,670	7,294	11,000	11,076
AIP Adm. Services	8,000	5,464	5,000	9,000	6,912
AIP Mem. Soc. Dues	7,500	7,500	5,000	8,000	7,879
Contributions and Prizes	11,000	21,315	315	22,000	9,690
Journal of Rheology	192,125	183,828	136,184	175,000	191,048
Bulletin	19,000	22,127	18,885	19,000	18,735
Bingham Award	12,000	10,000	0	12,000	10,000
Executive Cmt. Meetings	13,000	15,313	9,313	8,500	11,583
Pres. Discretionary Fund	1,500	0	0	1,500	0
Treas. Discr. Fund	1,500	0	0	1,500	0
Bulletin Editor Discr. Fund	1,500	0	0	1,500	0
Progr. Chm. Discr. Fund	3,000	2,000	0	2,000	3,176
Webmaster Discr. Fund	3,000	0	0	3,000	1,202
International Activities Fund	5,000	4,215	4,215	5,000	886
Office Expenses	4,000	5,760	1,573	3,000	4,288
Banking Services	100	60	40	100	90
Liability Insurance	3,900	4,979	0	3,900	3,830
Membership Broch. & Appl.	1,500	2,500	0	500	0
Accountant	2,000	2,200	2,200	2,000	1,920
Student member travel	21,000	15,400	0	26,000	21,542
Annual meetings, future	8,000	5,900	5,299	9,000	5,926
Website	3,000	3,000	0	500	2,846
Miscellaneous	500	0	0	500	19
<b>TOTAL DISBURSEMENTS</b>	<b>333,125</b>	<b>323,230</b>	<b>195,317</b>	<b>324,500</b>	<b>312,649</b>
<b>Net</b>	<b>6,175</b>	<b>35,376</b>	<b>215,113</b>	<b>17,100</b>	<b>45,400</b>

the end



# Candid Santa Fe



Arash Abedijaberi, Bamin Khomami, Eric Shaqfeh, and Susan Muller enjoy meeting hospitality in Santa Fe.



Gareth McKinley, Ole Hassager, and Michael Renardy are interrupted by the *Bulletin* photographer for a photo-op.



Members of the Korean delegation enjoy the banquet reception: Chongyoun Kim, Hyun Kyu, Sung Jae Lee, Kwang Soo Cho, and Seung Jong Lee.

(continued from Interview, page 7)

these were not advertised in the program, but the invitees were sent individual letters. This may be a way to get new folks into SOR. For example, in a future food/bio session we could invite quite a few food/biorheologists. Some other stuff to think about – should we drop a paper if one of the co-authors has not registered by a specified time?



(Calendar, continued from page 24)

13-17 October 2013

85<sup>th</sup> Annual Meeting of The Society of Rheology, Montreal Quebec Canada, Marie-Claude Heuzey, Paula Wood-Adams.

2014

4-5 October 2014

SOR Short Course on Rheology (topic TBA), Philadelphia, Pennsylvania USA

5-9 October 2014

86<sup>th</sup> Annual Meeting of The Society of Rheology, Philadelphia, PA USA, Michael Mackey and Norm Wagner

2015

October 2015

SOR Short Course on Rheology (topic and location TBA)

October 2015

87<sup>th</sup> Annual Meeting of The Society of Rheology, location TBD.

For other meeting notices, see also

[www.rheology.org/sor/info/Other\\_Meetings.htm](http://www.rheology.org/sor/info/Other_Meetings.htm)

<http://www.rheology-esr.org/Meetings.php>

[www.appliedrheology.org/\(click on conferences\)](http://www.appliedrheology.org/(click on conferences))





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## CALENDAR OF RHEOLOGY CONFERENCES AND COURSES

### 2011

*10-14 May 2011*

7<sup>th</sup> Annual European Rheology Conference AERC  
2011, Suzdal, Russia ([www.rheology-esr.org/AERC/2011/](http://www.rheology-esr.org/AERC/2011/))

*10-14 May 2011*

27<sup>th</sup> Annual Meeting of the Polymer Processing  
Society, Marrakesh, Morocco, M. Bousmina  
([www.pps-27.com/](http://www.pps-27.com/))

*18-22 June 2011*

16<sup>th</sup> International Congress of the European Society  
for Clinical Hemorheology and Microcirculation,  
14<sup>th</sup> International Congress of Biorheology, and the  
7<sup>th</sup> International Conference on Clinical Hemorhe-  
ology (held every three years), Munich, Germany  
([www.3sm-2011.com/](http://www.3sm-2011.com/))

*5-9 September 2011*

13<sup>th</sup> European School on Rheology  
Leuven, Belgium - Christian Clasen ([cit.kuleuven.be/ltrk/rheoschool/](mailto:cit.kuleuven.be/ltrk/rheoschool/))

*8-9 October 2011*

SOR Short Course on *Rheology of High-Interface*

*Systems*, Gerry Fuller, Jan Vermant and Andy Kraynik,  
Cleveland, Ohio USA

*9-13 October 2011*

83<sup>rd</sup> Annual Meeting of The Society of Rheology, Cleve-  
land, Ohio USA, Pat Mather

### 2012

*10-13 April 2012*

6<sup>th</sup> International Symposium on Food Rheology and  
Structure (ISFRS 2012); Zurich, Switzerland - Peter  
Fischer ([www.isfrs.ethz.ch](http://www.isfrs.ethz.ch))

*5-10 August 2012*

XVI<sup>th</sup> International Congress on Rheology, Lisbon, Por-  
tugal, João M. Lopes Maia (every four years)

*19-24 August 2012*

XXIII<sup>rd</sup> International Congress of Theoretical and Ap-  
plied Mechanics ICTAM 2012; Beijing, China (every  
four years)

### 2013

*9-10 February 2013*

SOR Short Course on Rheology (topic TBA), Pasadena,  
CA USA

*10-14 February 2013*

84<sup>th</sup> Annual Meeting of The Society of Rheology, Pasa-  
dena, California, USA, John Brady

*12-13 October 2013*

SOR Short Course on Rheology (topic TBA), Montreal,  
Quebec, Canada.

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