
THE BRITISH SOCIETY OF RHEOLOGY



BSR BULLETIN
incorporating the
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EDITORIAL

Welcome to my first BSR Bulletin as editor. I would first like to pay tribute to my predecessor, Paul Doody for his four years service as Bulletin editor. Having now done the job myself, I know how much hard work goes into putting an issue together.

This issue incorporates the 9th Newsletter of the European Society It contains the usual mix of conference reports and news, while Gary Tucker's commentary gives a "warts and all" insight into the workings of Council.

The next issue will be a special edition to celebrate the 100th Anniversary of the birth of George Scott Blair. So if anyone has any anecdotes they wish to share with the members of the BSR on Scott Blair's life or scientific work, please send them to me.

Oliver Harlen

SUBMISSIONS TO THE BULLETIN

Submissions to the Bulletin may be made by any practical means – post, email, disk, fax, pigeon, donkey, et cetera but electronically is preferred (saves typing...). Most packages supported (Word, TeX, LaTeX, WordPerfect, ASCII, RTF) but always provide a contact name, address, eMail, or telephone number in case of problems.

Copy dates are now fixed at 15 December, 15 April, and 15 August. This should allow me to publish in January, May, and September and, as always, all contributions are gratefully received.

Late copy can sometimes be accommodated, however the facilities of the BSR and ESR web sites may also be appropriate. Please contact the Editor for details.

COVER ILLUSTRATION

We are continually looking for colour or black & white pictures (preferably of a rheological nature!) for the front cover of the Bulletin and Rheology Abstracts. Please contact Oliver Harlen (Bulletin Editor), Gary Tucker (Abstracts Editor) or Nick Hudson (Publications Manager). Suggestions are always welcome!

BSR NEWS

Professor Abdellatif Ait-Kadi

Rheologists throughout the world will be sadden to learn that Professor Abdellatif Ait-Kadi passed away on 3rd December, 2001 in a tragic car accident. A funeral service was held in Ville St-Laurent (Northwest of Montreal) on 4th December 2001.

Professor Ait-Kadi was president of the Canadian Rheology Group and had been heavily in the organisation of both the International Congress of Rheology held in Quebec in 1996 and Polymer Processing Society meeting held in Montreal last year. He will be sadly missed.

For more information please contact Professor Pierre Carreau, Chemical Engineering Department, Ecole Polytechnique de Montreal. (514) 340-4711 ext.4924 or email [*Pierre.carreau@gch.polymtl.ca*](mailto:Pierre.carreau@gch.polymtl.ca).

Electronic Access to Scott Blair Collection Catalogue

As members will be aware a substantial collection of rheological literature is contained in the Scott Blair Collection, which is housed in a private room in the Department of Mathematics at the University of Wales Aberystwyth. Details of the collection have been announced in previous issues of the bulletin but members may not be aware of how to search the contents of the collection. The following instructions should help:

- Log on the University of Wales Aberystwyth online catalogue - Voyager at <http://voyager.aber.ac.uk/> and go into search.
- From there select the simple or advanced search option. Before starting your search click on APPLY LIMITS (found at the bottom right hand side) and select Scott Blair Collection from the drop down menu of the Location box.
- Scroll down and SET LIMITS. Please note that the limits option applies to keyword and title searches only. For full details on limiting your search see the help pages at <http://voyager.aber.ac.uk/help/English/limits.htm>
- The keyword search option is quite powerful and the options varied e.g.: enter words, phrases or numbers; use quotes to search for phrases: e.g. "fluid mechanics"; use + to mark essential terms: +rheology +food will find only records containing BOTH words; you

can use ? to truncate words: for example, rheol? will find rheology, rheological, rheologists, rheologie, etc; you can also use this method to search for an ISBN, ISSN or other number.

A web-site dedicated to the Scott Blair collection is currently being prepared and details of this development will be announced in a future bulletin.

David Binding

Membership Secretary's Report to 61st Annual General Meeting of the BSR

During the year membership has increased. At the start of the new subscription year, January 2001, we had some 586 members. Standing Order payments continued to be received, despite clear notices that this method of payment was no longer acceptable. By June, I had received renewal subscriptions from 340 people and consequently mailed direct to some 246 members a reminder notice. To date only fifty-five have replied positively. A few, notably ESR members, have written declining renewal.

As far as keeping our membership details up to date, the acceptance of standing orders was not helping. I have, during the year, written to all members who have renewed membership, a receipt has been sent which shows their details that are held by the Society. Particularly important now is an e-mail address. This register is slowly being put together and its completeness is solely dependent on the willingness of our members to update their details when there is a change.

This year there have been nineteen new members approved with ten members given honorary status. At present we have a membership of 414 with another 191 outstanding, having yet to renew membership.

I shall continue to chase these people. My aim, within the next year, is to be able to have an accurate and complete membership list, which will include e-mail addresses, where available. Since electronic interaction between us is the 'best value' route, could I ask that members update this on a regular basis.

Geoff Brownsey

Commentary on 304th BSR Council Meeting Novartis Foundation, 6th December

As a relative novice to the BSR and in attendance at my first Council meeting, I discovered that I had the job of writing the commentary on the Council meeting for the next Bulletin issue. That was the unanimous message from those learned folks around the table, and with only my one dissenting vote, I was substantially in the minority. And I thought life had become complicated enough when the President twisted my arm to take on the role of Rheology Abstracts editor! The crumb of comfort was that there was no strict format for the commentary, and I was assured that it did not have to be entirely factual (the minutes served this purpose).

The chosen venue for the 304th Council meeting was the Novartis Foundation in Portland Place, with a start time of 11.00am. This was a good choice of venue, and a sensible start time that allowed a leisurely walk from Paddington along Marylebone Road to Portland Place. Having already decided that I was to write the commentary, the first agenda items referred back to the minutes of the last Council meeting. In my experience, matters arising from the minutes of a previous meeting do not in general take long to discuss. However, all of the contentious items seemed to be secreted within the matters arising and they took most of the morning session to come to agreement. Before matters arising even started, there was a discussion about the Scott Blair Collection and how easy or difficult it was to loan books. Geoff Brownsey has got his hands on a very old textbook that was in need of repair, and should not have been loaned from the library. Apparently such books were for reference only. In my capacity as the novice, I thought I should ask the silly questions, so requested that BSR members are made aware of what is available in this collection, since I was unsure. David Binding agreed to write some words for the Bulletin. Apparently there are some 600 books housed in a small room, somewhere in deepest Wales, and last catalogued in 1990, further information in this Bulletin.

The item on the Canadian Society of Rheology (CSR) and their handling of electronic Rheology Abstract (RA) files was predictably contentious. Fortunately, I did not know much about the background, other than having received and partly read a host of e-mails flying around Council

members in mid-October. My contributions to this debate were minimal, although I listened with interest, and in places with amusement. The debate also strayed into another contentious subject, that of formal agreements, with Phil Banfill accepting the job of drafting one with the CSR. The formal contract theme popped up throughout the Council meeting, and it was the next agenda item under matters arising. However, a gripe from some BSR members about out-of-date conference adverts in the Bulletin appeared next on the agenda, mysteriously before the appointed item on formal agreements with outside service providers. I couldn't get too worked up about this one, since I receive the IChemE's Food & Drink subject group newsletters months after the conferences have been held. This is a common issue caused by the timescales required to convert Word text into printed pages. All regular publications that run adverts for conferences and courses suffer the same problem. The discussion started by first blaming the advertising format, then the adverts were reprieved, and it was another reason. While the adverts were the centre of attention, the question was asked 'who books the adverts and at what price'? It was a valid, if irrelevant question, and one that did not get answered in full until late in the meeting. It was no surprise that the subject of formal agreements with outside service providers cropped up again, this time with the request that Nick Hudson approaches the University of Strathclyde printers to formalise dates for the Bulletin and Abstracts. And since his position was a key one in the BSR Nick needed a job description, which he claimed was written three years ago, but since no-one could remember seeing such description, Nick was asked to update it. The debate went on a bit longer...

The last item in the matters arising section was short, probably because there was little contention and lunch had been brought into the room some time ago. Everyone agreed that the Annual Review of non-Newtonian Fluid Dynamics was a good idea. Libraries would prefer the format to be a book-style rather than electronic. There was to be a 'guest editor' appointed on a two-year renewable term, with a second editor to assist in the less glamorous 'dogs body' work.

Reports from the officers were short in comparison to the 'matters arising' items, although they did increase in length exponentially down the list:

- The Honorary Treasurer, Rhodri Williams, was not able to attend the meeting, so finances would be circulated soon and could thus not be discussed at Council.

- The Honorary Secretary, Phil Banfill, must have made a report, but my notes are blank (I'm sure the minutes will reflect his true report).
- The Membership Secretary, Geoff Brownsey, raised a number of slightly concerning issues. There were 413 BSR members, plus 170 non-members that had not cancelled standing orders and paid annual fees ranging from £1 to £13. Geoff did not have the authority to cancel the standing orders, so effectively this was 'free BSR income'. With my commercial hat on, this seemed a decent situation for the BSR, but not very ethical!. More concerning was the loss in membership since 1999, when the Rheology Abstracts were separated from the annual BSR fee, a move that prompted many to opt out of taking RAs. This point was further discussed later in the meeting.
- The Bulletin editor, Oliver Harlen, initiated a lengthy discussion on the inclusion of the European Society of Rheology Newsletter in two of the three Bulletin. At present these issues are taken by the Belgian, German and Italian societies. It was agreed that, in light of declining interest, we should discuss the future of the European Society of Rheology Newsletter with other European societies. The discussion also went into the sticky ground of web-site publication of the Bulletin and how this would affect the revenue from adverts. In spite of modern web technology, there was a strong belief that the Bulletin should remain in its present format at least for the near future.
- The retiring Abstracts Editor and current Publications Manager, Nick Hudson, gave out figures that showed how the number of abstracts had increased to nearly 4,000 in each of the recent volumes, and to nearly 3,000 per year. Since I thought that each year corresponded to a new volume number I was further confused (but as the new Abstracts Editor I hope to fathom this one out). Invoices cropped up again, and who should send them out, so in the absence of the Honorary Treasurer he was duly elected to undertake this activity. The rest of the debate centred on the format that the RAs should take. Nick had contacted libraries, and the one that replied had indicated the hard copy was preferred, so it was agreed that this should continue. After all, 100% of respondents wanted hard copy Abstracts. However, several members expressed the desire to make the RAs available to all members again, but there would be a cost in doing this. A possible increase in subscriptions to £25 was suggested, but must be discussed at the next AGM. Nick indicated

that costs for 500 CDs would be about £8 per CD, at which cost the economics didn't stack up unless RAs were sent out only once per year. There may be ways to reduce this, such as combining the Bulletin in some releases. Further investigation is required.

- The Webmaster item seemed to disappear, or was discussed to death in previous items.

With time pressing, the next agenda items were dealt with swiftly. The Plymouth conference on 24-26 April 2001 had been successful. The Spanish conference for 21-24 April 2002 had attracted 110 abstracts and 95 provisional 'yes' replies to the web advertisement. BSR will sponsor students rather than allocate money to the conference organisers. A speaker, venue and date had yet to be found for the AGM in September 2002, so Council members were instructed to sort this out. Finally, with regard to 2003 conferences, Phil Banfill requested subjects for inclusion in the minutes. Suggestions were for a non-Newtonian Fluid Mechanics meeting for pre-Easter, presumably held in the valleys, and for a joint IMPACT Faraday / BSR meeting on colloids, which I would explore.

The final agenda item concerned memorandum matters, yet more confusion for the BSR novice, as I had never experienced a similar item in other meetings. Phil Banfill produced a document comprising what appeared to be key agenda items from past Council meetings. I was fortunate to be able to peer over his shoulder and see the document, otherwise I would have been really confused. At this stage I was guilty of paying more attention to my watch, since the 4.18pm from Paddington was almost make-able. My notes simply state 'unusual section'.

There were no substantial time-draining items of any other business, although it wouldn't have had mattered since the 4.18pm could not have been caught even by Linford Christie. Finally we got to the date and location of the next Council meeting, planned for 27 March 2002 at Lake Vrynwy Hotel. This would follow a conference on some aspects of non-Newtonian Fluid Mechanics, which I will endeavour to find out about in due course. My notes have the 24 June against the any other business item, and apparently Phil Banfill is to decide the exact location for a meeting in or around Chester. It sounds good but I have no idea to what meeting it refers. Again, the minutes should clarify. I had now resigned myself to the catching 5.12pm from Paddington and so the pressure was off to end the meeting.

Overall this had been an enjoyable day, if meetings can ever be described as enjoyable. I had felt it wise to make more notes than normal in order to pen the commentary and keep the facts somewhere close to the truth. Having written this commentary I now support fully the view that the Council novice has the job. I shall look forward to the next Council meeting.

To add a bit more spice to the day, a suspect package had been left outside the building, forcing us to exit through the back door. Police had cordoned the area and were getting prepared to deal with it. We sloped off in the opposite direction keeping ears open for the bang, which fortunately never came. I really must have a word with Eirian about leaving his sandwich box lying around!

Gary Tucker

CONFERENCE REPORTS

Complex Materials in External Fields Manchester, UK, 29-31 August 2001

This conference formed part of the 150th year celebrations of the University of Manchester. It was organised by Andrew Masters from the Department of Chemistry at the University of Manchester and Janette Jones from Unilever Research, Port Sunlight. This was a joint meeting of the Statistical Mechanics and Thermodynamics Group of the Royal Society of Chemistry, the Institute of Physics and the British Society of Rheology with financial support provided by the University of Manchester and Unilever Research.

The conference mainly focussed on fundamental studies of the microstructure of complex materials and how this affects their macroscopic properties. There were 20 oral presentations and several posters. The majority of the talks were concerned with simulations or experiments on hard sphere colloids, but other complex materials such as liquid crystals and droplet suspensions were also discussed. There were approximately 45 registered participants including 5 distinguished overseas speakers.

The first keynote lecture was given by Professor Jorrit Mellema from the University of Twente. He gave a review of flow-induced diffusion in non-

Brownian systems and then presented some recent experimental results on self diffusion of non-Brownian spheres from particle imaging. George Petekidis from Edinburgh then described an echo technique using light scattering to study highly concentrated suspensions. Another novel experiment was described by Paul Bartlett, who used optical tweezers to measure the hydrodynamic interactions between two Brownian hard spheres.

Professor Jan Dhont discussed the phenomenon of “shear-banding” in materials with non-monotone stress-strain curves in his keynote lecture. He described how the isotropic-nematic transition in a hard-rod system can lead to this behaviour, and illustrated this with experimental results. Following on, Peter Olmsted from Leeds presented a macroscopic theory for the existence of shear-bands based on the form of the stress-strain-rate relation.

In his keynote address Professor John Brady returned to the theme of shear-induced diffusion. Using direct simulations from his Stokesian dynamics method, he showed that the hydrodynamic interactions in non-Brownian systems give rise to the same kind of diffusive motion seen in colloids. Robert Jones from Queen Mary also showed results from Stokesian dynamics, while John Melrose from Unilever and Chris Lowe from Delft described alternative methods for simulating the dynamics of concentrated suspensions of spheres. In a cautionary tail, Patrick Warren described how despite using what he termed a “farrago” of numerical techniques, he was still unable to explain experimental measurements of the colloidal force between a sphere and ledge.

Chris Care from Sheffield and Julia Yeomans from Oxford both described the use of the Lattice Boltzmann technique to model nematic liquid crystals, using a variety of different constitutive models. They both illustrated how the flexo-electric effect can be used to produce bistable liquid crystal devices. These have the potential to provide faster response and lower energy costs than conventional liquid crystal devices. Later in the conference Alexander Wagner used the same technique to study droplet break-up at finite Reynolds number.

The final keynote lecture was given by Professor Francois Lequeux from E.S.P.C.I , Paris. Using a combination of rheological and light scattering experiments he showed that concentrated colloidal suspensions exhibit aging, in a manner similar to glassy polymers. While the conference had mostly concentrated on highly idealised systems, in the final talk Rachel

Cooke from Cambridge described her work on measuring the rheology of fracturing fluids used in oil wells.

As well the science the meeting also hosted the AGMs of the BSR and SMTG. Reports from Officers at the AGM are the last and the current Bulletin. At the conference dinner, Professor Eirian Jones presented the Annual Award of the BSR to Professor Howard Barnes OBE of Unilever (see Bulletin 44(2) for the citation).

Oliver Harlen



The European Society of Rheology

An ESR Executive Committee Message

Every Rheologist may wish to add the following bookmark on his/her Internet navigator:

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

and to register as a user of the site.

The old website and Jicsmail email addresses will be closed by 28th February, 2002.

After this date, you will need to submit your email messages via the new website. They will then be forwarded to every member of the ESR website directory.

ESR Committee



6th European Conference on Rheology
September 1-6, 2002
Erlangen, Germany

The 6th European Conference on Rheology (Eurheo 2002), organised by the Institute of Polymer Materials (LSP) in collaboration with the German Society of Rheology (DRG), is held in the tradition of the International Conferences on Rheology and is intended to be a meeting place for everybody working in the different fields of rheology.

The conference will cover the following topics:

- * Molecular modelling, numerical simulations and microstructural modelling
- * Pharmaceuticals, cosmetics and food
- * Colloidal and non-colloidal suspensions
- * Polymer melts and solutions
- * Extensional rheology
- * Metallocene polymers and long chain branching
- * Rheology of Solids and composites
- * Rheometry
- * Experimental studies and numerical simulations of flow instabilities
- * Rheology and processing
- * Foams, emulsions, and surfactants
- * Non-Newtonian fluid mechanics
- * Miscellaneous

Plenary and keynote lectures will introduce the topics of the individual symposia. Contributions to the meeting are accepted as oral and poster presentations. The following rheologists have kindly agreed to present plenary and keynote lectures:

Plenary lectures

- * Dr. N. El Kissi (University of Grenoble, France)
- * Prof. Dr. O. Hassager (University of Denmark, Denmark)
- * Dr. G. Peters (Technical University of Eindhoven, The Netherlands)
- * Dr. N. Willenbacher (BASF AG, Germany)

Keynote lectures

- * Prof. Dr. I. Emri (University of Ljubljana, Slovenia)
- * Prof. Dr. K. Koyama (Yamagata University, Japan)
- * Dr. P. Lomellini (Enichem Research Center, Italy)
- * Prof. Dr. M. Mackley (University of Cambridge, UK)
- * Prof. Dr. T.C.B. McLeish (University of Leeds, UK)
- * Prof. Dr. J. Mellema (University of Twente, The Netherlands)
- * Prof. Dr. J. Mewis (University of Leuven, Belgium)
- * Prof. Dr. M. Renardy (University of Virginia, USA)
- * Prof. Dr. E. Windhab (ETH Zürich, Switzerland)

In addition to the scientific sessions a social program with sightseeing tours for the accompanying persons, an excursion for all attendants, a banquet dinner and a church concert will be organised.

Further information can be obtained from the internet page <http://www.lsp.uni-erlangen.de/eurheo2002> which will be updated regularly.

Contact: Eurheo 2002, Institute of Polymer Materials, Department of Materials Science, Martensstr. 7, 91058 Erlangen, Germany,
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European Society
of Rheology



German Society
of Rheology



Institute of Polymer
of Materials

News from National Societies

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Joint Meeting of the BGR-NRV, Solvay Central Research, Brussels

Rheology : Bridging the gap between fundamentals and useful applications.

On Nov 12th 2001, The Belgian and Dutch Rheology Groups teamed up for a joint meeting on the occasion of Prof. R. Jongschaap's retirement. The meeting started with a keynote lecture by Prof. Han Meijer (TUE, NL), president of the NRV. He outlined the recent work of Prof. Jongschaap (TUT, NL) sketching his place in the rheological community. On a more personal note he remembered being taught continuum mechanics by Prof. Jongschaap using the famous book by Noll, or at least the first 70 pages of it. Prof. Jongschaap started the scientific part of the meeting with an overview on constitutive equations, what they should obey and how they should be constructed. Prof. C. Bailly (UCL, B) subsequently addressed the issue of how complex molecular models can be used successfully to estimate molecular parameters from rheological data. Dr. F. Langouche (Solvay, B) introduced a subject, which was revisited on several occasions later in the day: polymer crystallization and its relation to rheology and flow.

After a Belgian style lunch, kindly offered by Solvay, Prof. F. Baaijens (TUE, NL) presented the Eindhoven version of the Pom-Pom model and its applications to modelling complex flows. Dr. P. Van Puyvelde (KU Leuven, B) introduced the use of rheo-optical methods to study morphology development in phase separated biopolymer mixtures. Dr. G. Peters (TUE, NL) returned to the subject of polymer crystallization, discussing successes and challenges in modelling these phenomena and their relation to the rheological parameters. Prof. J. Vermant (KU Leuven, B) tied rheo-optics and polymer crystallization together to study the initial stages of flow-enhanced nucleation.

The meeting attracted over 50 participants. The level of the presentations and discussions was very high and the meeting was considered to be highly successful. It is clear that, although the gap between applications and fundamentals is still not completely filled, bridges are starting to emerge. The BGR and NRV wish to thank Solvay for its hospitality and financial support for the meeting.

Jan Vermant, Secretary of the BGR.

Another 'European School on Rheology' success in Leuven

It is becoming a tradition: every two years that the Rheology group in Leuven hosts the European School on Rheology. Last September, about 45 rheologists from all over Europe found their way to the historic scenery of the Arenberg Castle to learn more about rheology and rheological measurements. Both the northern part and the southern part of Europe were well represented (8 different nationalities!!). As usual, the faculty responsible for the rheological education was of high standard. Chris Macosko introduced the students to the world of tensors, stress and strain. The 'home team', Jan Mewis and Paula Moldenaers, provided the necessary insight into viscoelasticity and shear rheometry. Gerry Fuller taught classes on extensional rheometry and rheo-optics. Pino Marrucci was again outstanding in teaching the basic principles of polymer rheology. Han Meijer applied these concepts to polymer processing. Roland Keunings gave an overview of computational rheology. Finally, the topical lectures zoomed in the frontiers of rheology, i.e. polymer blends (Moldenaers), coating flows (Mewis) and structure probing techniques and interfacial rheometry (Vermant/Fuller). Next to these classroom performances, the participants were submerged in the lab where our team of motivated PhD students did a great job in

transferring their measurement skills. The organization into small lab groups encouraged lively discussions and seemed to be one of the most parts of the course. Of course, not only rheology was present that week. The guided visit of Leuven, the wide variety of Belgian beers, the delightful course dinner, ... it all helped to make this week an unforgettable experience. The success was also a good motivation for the organizers to start thinking at 2003!

Reported by Peter Van Puyvelde

<http://www.univ-lemans.fr/sciences/wgfr>



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36th Annual Meeting: Rheology, Civil Engineering and Environment

The 36th national conference of the French Group of Rheology, entitled "Rheology, Civil Engineering and the Environment", took place from the 10th to the 12th October 2001 in the Ecole Nationale des Ponts et Chaussées (ENPC) on the University of Marne la Vallée campus. The conference was divided into five scientific sessions: behaviour and internal structure, mixing and segregation, visualization of flows or structure, numerical simulation, and applications. Sixty-two oral or poster communications were presented, dealing with various problems of flows of civil engineering or environmental complex fluids such as:

cement pastes, fresh concrete, sewage sludge, debris flows, clay-water mixtures, drilling fluids, bituminous emulsions, mineral pastes, powders, paints, etc. On the first day each author gave a short oral introduction to his or her poster, a procedure that facilitated a better exchange of information. The conference emphasised the link between rheology and physics, for example several communications either used model fluids to study certain characteristics (mixing, sedimentation, etc) of civil engineering suspensions, or showed the analogy between yield stress fluids and glasses, or developed techniques of visualization of the structure.

This conference welcomed 170 manufacturers, students and academic researchers, which represents one of the largest participations in the history of the French Group of Rheology. During the 3 days of this Conference, the participants had also the opportunity to get information of the latest developments in instrumentation from the major rheometer companies who had booths close to the conference room.

The afternoon of the second day was devoted to a visit of the Château de Vaux-le-Vicomte and its gardens (a great castle built by Fouquet which inspired Versailles) in a glorious sun. In the evening the participants got together for a banquet in Disney Village, during which the GFR award, co-sponsored by TA Instruments, and the thesis award were presented by the GFR President, to J.M. Piau and R. Valette respectively. More information is available on the website: <http://www.enpc.fr/GFR2001/>

AGM of the GFR

At the annual general meeting of the GFR, Pr Patrice Flaud was elected president for the year 2001-2002. More information on the new board of the GFR and on our activities can be obtained at <http://www.univ-lemans.fr/sciences/wgfr>.

School of rheology

The first GFR school of rheology took place in Marne la Vallée during the two days prior to the 36th congress. The first day topic was Granular materials and rheology. The objective was to make a link between rheology and the field of physics and mechanics of granular media, which has been strongly developed in recent years especially in France. The speakers were: J.N. Roux (Laboratoire des Matériaux et des Structures du Génie Civil (LMSGC)), J. Canou (CERMES, ENPC), F. Chevoir (LMSGC) and P. Coussot (LMSGC). The topic of the second

day was Techniques of exploration and rheology. The objective was to review various techniques such as ultrasound, light diffusion, SANS, X-Rays, NMR, etc, which make it possible to obtain information concerning the evolution of structure or flow characteristics within the materials, and their implications in rheology. The speakers were P. Snabre (Laboratoire ISM, Font-Romeu), F. Boué (Laboratoire Léon Brillouin, Saclay), C. Bourgaux (LURE, Orsay), J.F. Tassin (Laboratoire de Physicochimie Macromoléculaire, Le Mans), S. Rodts, J.S. Raynaud, P. Coussot (LMSGC, Champs sur Marne). The school was a great success with 35 participants of various backgrounds (about 50% students, 25% industrial and 25% academic researchers) attending the sessions. Their answers to a final questionnaire showed that the great majority of them were satisfied and wish it to be repeated.

Upcoming activities

The next GFR annual conference will be held in Saint Etienne 9-11 October 2002. It is being organised in association with the German Society of Rheology around the topic "Rheology, Morphology, Structure". Since 1965, the GFR has chosen themes for its annual conference that reflect the interdisciplinarity inherent in this scientific field. The theme of the 2002 conference continues this tradition with physics, mechanics, chemistry, biology, mathematics all involved in the investigation of structure and complex fluids morphology. The interaction between morphology, rheological behaviour and processing, will be at the heart of the discussion. The objective is to encourage and develop exchanges and collaborations between academic scientists and centres of industrial study (polymers, chemistry, biomedical, geology, civil engineering...) on these problems. The conference will be centre on the following main topics :

- Heterophased systems (polymer blends and filled polymers; suspensions, pastes and emulsions; biological fluids).
- Mixing, formulation and processing, flow structuration.
- Flow simulation, constitutive equations.
- Structures and morphologies characterisation in situ, on-line and off-line.

More information can be found on the conference website <http://www.univ-st-etienne.fr/gfr2002> contactgfr2002@univ-st-etienne.fr

The fourth "Meeting of Young Rheologists" will take place in Rouez en Champagne close to Le Mans, from 13th to 15th May, 2002. It will be

organized by Jean-François TASSIN (Université du Maine, Polymères Colloïdes et Interfaces, Avenue Olivier Messiaen, 72085 Le Mans Cedex). All young rheologists familiar with French are welcome to attend this meeting. The deadline for applications is 15th February, 2002.

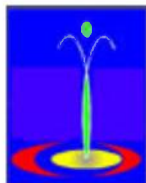
Jacques Bouton, GFR International Delegate

8th European School on Rheology



Organised by

Rheology for the Process Industries
Torremolinos - Málaga (Spain)
April 21-24, 2002



The European Society of Rheology



Grupo Español de Reología

The British Society of Rheology



Directed by:

Prof. Crispulo Gallegos
c.gallego@uhu.es
Universidad de Huelva

Dr. Nicholas E. Hudson
n.e.hudson@strath.ac.uk
University of Strathclyde

School Fee

750.00 Euros

A limited number of scholarships will be available (50% reduction in the regular fee).

Course

The length of course will be 30 hours

Faculty
(provisional)

Prof. H.A. Barnes, Unilever, UK
Prof. C. Gallegos, University of Huelva
Dr. N.E. Hudson, University of Strathclyde
Prof. J. Mewis, Katholieke Universiteit Leuven
Prof. J.M. Piau, University of Grenoble
Prof M.H. Wagner, Technical University of Berlin

Prof. K. Walters, University of Wales
Prof. H.H. Winter, University of Massachusetts

Contact address: Prof. C. Gallegos
Universidad de Huelva
europeschool@uhu.es

Eurorheo 2002-01



**Joint Meeting of British, Italian, Portuguese and
Spanish Rheologists
Torremolinos - Málaga (Spain)
April 24-26, 2002**

Organised by

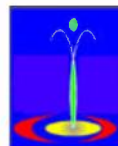


The European Society of Rheology

Grupo Español de Reología



Sociedade Portuguesa de Reologia



Società Italiana di Reologia

S.I.R.



The British Society of Rheology

Local Committee The Rheology Group of the Universities of Huelva and Sevilla hosts the meeting

Co-chairmen	Prof. Antonio Guerrero aguerrero@us.es Universidad de Sevilla	Prof. José Muñoz jmunoz@us.es Universidad de Sevilla
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Conference Topics	Constitutive Equations, Theory and Molecular Theories Electro and Magnetorheology Fluid Mechanics and Numerical Simulation Food Rheology and Biorheology Industrial Rheology Polymer Rheology and Processing Rheometry, Experimental Methods and Instrumentation Suspensions, Emulsions and Foams, Gels
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Contact address: Eurorheo2002-01
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<http://www2.uhu.es/eurorheo>
eurorheo2002-01@uhu.es

OTHER RHEOLOGICAL ANNOUNCEMENTS

CONFERENCES



THE AMERICAN SOCIETY OF MECHANICAL
ENGINEERS

Advances in Materials Processing Science

November 17-22, 2002

ASME International Mechanical Engineering Congress & Exposition,
New Orleans, LA, USA

The purpose of this symposium is to bring together researchers from academia, industry, and government to promote further development in this broad field. Topics of interest include but are not limited to:

Process Modeling – Mechanics During Processing – Material Rheology
During Processing – Process Automation and Control – Novel
Processing Methodologies – Process Optimization – Thermal and
Chemical Issue – Sensing During Processing

Prospective authors should submit a 500-word abstract for peer review. Print copies, faxes, and e-mail submission will all be considered, but e-mail submissions are preferred. Abstracts with equations, tables or figures should be avoided. Accepted papers will be published in an ASME Symposium Proceedings, and possibly considered for publication in a journal affiliated with the symposium.

DEADLINE SCHEDULE

Abstract due:	February 15, 2002
Notification of acceptance:	March 15, 2002
Full length draft manuscript due:	April 15, 2002
Author notification/Instructions:	May 20, 2002
Camera-ready papers due to organizers:	July 15, 2002

ORGANIZER

Professor Dennis A. Siginer, Dean, College of Engineering
Wichita State University, 1845 Fairmount, Wichita, KS 67260, USA
Tel: (316) 978-3400, Fax: (316) 978-3853
Email : dennis.siginer@wichita.edu



THE AMERICAN SOCIETY OF MECHANICAL
ENGINEERS

Flows in Manufacturing Processes

July 6-10, 2003, Honolulu, Hawaii

The Fluid Mechanics Technical Committee (FMTC), the Coordinating Group in Computational Fluid Dynamics (CGCFD), and the Fluids Applications and Systems Technical Committee (FASTC) of the Fluids Engineering Division of the ASME are jointly sponsoring a symposium on Flows in Manufacturing Processes. Papers enhancing our understanding of the fluid dynamics of such processes, via analytical, experimental and numerical simulations, are sought. Studies of all types of manufacturing processes involving Newtonian or non-Newtonian fluids under isothermal and non-isothermal conditions are welcomed.

Prospective authors are requested to submit an abstract to one of the organizers listed below. A full manuscript is to be submitted for review according to the attached schedule. Accepted final manuscripts will be published in the Proceedings of the 2003 FEDSM, and have to be prepared according to the ASME standard format for a conference paper.

DEADLINE SCHEDULE

Abstract due:	June 22, 2002
Notification of acceptance:	July 27, 2002
Full length draft manuscript due:	November 2, 2002
Author notification/Instructions:	January 4, 2003
Camera-ready papers due to organizers:	February 22, 2003

ORGANIZER

Professor Patrick Bourgin
Ecole Supérieure de Plasturgie
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Email: bourgin@esp-oyonnax.fr



THE AMERICAN SOCIETY OF MECHANICAL
ENGINEERS

**Rheology and Fluid Mechanics of Nonlinear
Materials**

November 17-22, 2002

ASME International Mechanical Engineering Congress & Exposition,
New Orleans, LA, USA

The purpose of this Symposium is to provide a platform for the reporting of the latest results concerning issues related to various aspects of the rheological and flow properties of nonlinear materials, and in particular advanced materials for the 21st century. Fundamental issues such as flow instabilities, inverse problems in Rheology and constitutive formulations appropriate for electrorheological fluids, thin films, suspensions, slurries, emulsions, oil field fluids, paper making fluids such as black liquor, laminar and turbulent flows of polymeric and other non-Newtonian liquids, are included as well as various transport processes, bubble motions, sprays, extrusion phenomena, fibre spinning, film blowing, industrial coatings, etc. Areas of interest are not limited to these issues. Theoretical, numerical and experimental contributions are solicited.

Papers will be peer reviewed. Prospective authors are requested to submit a one page abstract to the organizers by the deadline of February 15, 2002. Accepted papers will be published in a bound volume available at the meeting.

DEADLINE SCHEDULE

Abstract due:	February 15, 2002
Notification of acceptance:	March 15, 2002
Full length draft manuscript due:	April 15, 2002
Author notification/Instructions:	May 20, 2002
Camera-ready papers due to organizers:	July 10, 2002

ORGANIZER

Professor Dennis A. Siginer, Dean, College of Engineering
Wichita State University, 1845 Fairmount, Wichita, KS 67260, USA
Tel: (316) 978-3400, Fax: (316) 978-3853
Email : dennis.siginer@wichita.edu

RECRUITMENT OPPORTUNITIES

A range of opportunities may be found at <http://www.bsr.org.uk/>

For example:

University of Cambridge. Department of Chemical Engineering. Postdoctoral Position In Polymer Processing.

A three-year EPSRC funded postdoctoral position exists to join the Polymer Fluids Group in the Department of Chemical Engineering at Cambridge. The position involves carrying out a mainly experimental research programme concerned with fundamental and applied aspects relating to the polymer foaming process. Experimental work will involve using one of our own recently developed Multi-pass Rheometers. Applicants should have experience in one or more of the following areas: Chemical Engineering, Physics, Mechanical Engineering, Polymer Science, Polymer Processing, Materials Science or Rheology.

The salary will be on the RAIA age-related scale subject to age and experience. The appointment is intended to commence as soon as possible. An application form may be obtained from the Secretary of the Head of Department, Department of Chemical Engineering, Cambridge CB2 3RA (e-mail recruitment@cheng.cam.ac.uk) or downloaded in pdf format (<http://www.cheng.cam.ac.uk/postdocresearch.html>). The department's web site also describes fully the department and its activities. The completed application form and *curriculum vitae* should be sent to the Secretary of the Head of Department.

The University of Cambridge is committed to equality of opportunity

INDUSTRY NEWS

NEW ADVANCED RHEOMETER FROM TA INSTRUMENTS

TA Instruments' latest top-of-the-line rheometer, the AR 2000 features Smart Swap™ interchangeable temperature control systems, and expanded torque and frequency range. The new Mobius drive™ system enables exceptional controlled stress and controlled rate performance.

NEW QC/QA RHEOMETER FROM BOHLIN INSTRUMENTS

Bohlin Instruments has launched the CVO100 Rheometer, a new, wide dynamic range system specifically designed for QC and QA testing. The CVO100 incorporates many of the features found on Bohlin's research grade systems.

The CVO100 is available with a Peltier temperature controller which offers fast, compact and accurate control for either coaxial cylinder (cup and bob) or cone and plate measurement techniques. The CVO100's modular design and easy interchange of temperature controls, allows complete flexibility in temperature control options on a single test station. These options include high and low temperature measurement cells. Other standard features include automatic gap setting and a dual operation motor assembly. But perhaps the significant point for QC/QA applications is that it can operate at set shear rates or in controlled stress mode.

RHEOMETRIC SCIENTIFIC INTRODUCES NEW RHEOMETER FOR ELASTOMERS AND RUBBER

Rheometric Scientific announced the release of a new rheometer designed specifically for testing elastomers and curing systems called the RDA-HT. Utilizing a unique high torque/low compliance transducer and high torque servo motor, the RDA-HT is ideally suited for studying cure behaviour, the effects of fillers, and end-use performance testing for the tire and rubber industry.

The RDA-HT comes with disposable plate fixtures in 8mm, 12.5mm, and 25 mm diameters so elastomers can be cured in the fixtures prior to testing, and an optional elastomer sample mould is also available. Using

the torsion fixture, finished products from cured rubber to high strength composites can be tested at temperatures from -150°C up to 600°C.

THERMO HAAKE – RHEOSCOPE 1

RheoScope 1 is a unique combination of an optical microscope and a digital video camera integrated underneath the temperature controlled base plate of a universal cone and plate rheometer. It allows the synchronous recording of both the rheological properties and the changes in the microscopic structure of the sample tested. The complete instrument (rheometer, microscope and camera) is controlled by the Thermo Haake RheoWin software. Data, video sequences and images can be visualized on-line as well as stored in various formats for later evaluation and analysis.

The RheoScope 1 is capable of performing the standard rheological test methods such as basic viscosity measurements in controlled stress and controlled shear rate mode, yield stress measurements as well as oscillatory measurements for the determination of viscoelastic properties as a function of time and temperature. However the RheoScope 1 does much more: simultaneously with the above mentioned rheological measurements, the shear induced change in structure of the sample is recorded and displayed in the software. Corresponding to each data point (viscosity, shear stress, temperature etc.) a microscopic image of the actual structure is available. Because of this, the relationship between the rheological properties and the structure becomes visible.

BROOKFIELD'S NEW BABY - AND CONTROLLED STRESS TOO!

Brookfield Engineering Laboratories has entered the controlled stress rheometry market with the launch of the R/S Rheometer range of instruments running stress and rate controlled methods. Starting at below £10000 (about \$15500) the instruments are available in cone and plate/parallel plate or concentric cylinder formats.

STABLE MICRO SYSTEMS

Stable Micro Systems launched its new-generation texture analyser at FIE 2001. The new TA-XTPlus Texture Analyser is extremely efficient, capable of high-speed testing and boasts a completely new software package.

Various design features enhance the functionality of the TA-XTPlus. A simple keypad has been integrated into the main body of the analyser to save desk space. The ability to plug in peripheral instruments has been incorporated into the design to provide multi-channel data acquisition. Modifications have been made to maximise the flexibility of the texture analyser. These include multi-stage test programming facilities so the user can define individual arm-movement sequences at various speeds and distances. The speed range of the TA-XTPlus has also been extended. The high-resolution functionality from the established TA.XT2iHR model has been incorporated into the new instrument as standard, allowing for a minimum speed of 0.01mm/s. High speed testing is also possible as a maximum speed of 40mm/s can be reached using 5kg and 25kg load cells. Speed can also alter in proportion to the height of the sample, so products can be tested at a constant strain rate.

MAGNA PROJECTS - INJECTION MOULDING IN-LINE ANALYSIS SYSTEM

Magna Projects has been awarded the licence by the National Physical Laboratory (NPL) to develop and market their Patented IMAS Injection Moulding Analysis System for monitoring the rheology of a material during each injection moulding cycle. This is a non-invasive system, based around a nozzle extension of carefully calculated geometry.

An IMAS nozzle being installed at Exeter Advanced Technologies in the University of Exeter as part of an ICT Carrier-funded project, Production OnLine, to develop a software package to allow the performance of injection-moulding machines to be viewed in real time over the Internet.

CONFERENCES

You are also advised to visit the BSR home pages where an extensive list of conferences is maintained by Chris Petrie: <http://www.bsr.org.uk/>

2002	
21 Feb London UK	FUNCTIONAL STARCHES IN FOODS Alex Jennings, SCI Conference Secretariat, 14/15 Belgrave Square, London SW1X 8PS, UK T: +44(0)20 7598 1564; F: +44(0)20 7235 7743 E: alex.jennings@soci.org Info: www.soci.org
25-27 Mar Powys UK	LAKE VYRNWY CONFERENCE ON PROCESS MODELLING Dr G W Roberts, Institute of Non-Newtonian Fluid Mechanics, School of Informatics, University of Wales, Bangor, Gwynedd LL54 7UF, UK T: +44 (0)1248 382480/382475 F: +44 (0)1248 355881 E: g.w.roberts@bangor.ac.uk
24-26 Apr Malaga Spain	EURORHEO 2002-01 Departimento de Ingeniera Quimica, Universidad de Sevilla, c/P Garcia González, s/n 41012 Sevilla, Spain T: +34 95455 7179 F: +34 95455 7134 E: eurorheo2002-01@uhu.es Info: www2.uhu.es/eurorheo
16-20 Jun Guimaraes Portugal	PPS-18 – THE 18TH ANNUAL MEETING OF THE POLYMER PROCESSING SOCIETY Info: http://www.dep.uminho.pt/pps18
23-28 Jun Blacksburg, Virginia, USA	14th U.S. National Congress of Theoretical and Applied Mechanics E. G. Henneke E: usncam14@vt.edu Info: www.esm.vt.edu/usncam14
7-12 July Beijing China	WORLD POLYMER CONGRESS 2002 Secretariat, MACRO 2002, P.O. Box 2709, Beijing 100080, China. T: +86-10-62554184; F: +86-10-62562417 E: macro2002@pdccs.org.cn Info: www.ciccst.org.cn/macro2002/
18-22 Aug Cracow, Poland	International Symposium on Electrokinetic Phenomena Jerzy Haber E: ncadamcz@cyf-kr.edu.pl Info: akropolis.pol.lublin.pl/users/ekp2002/index.htm

1-6 Sep Erlangen Germany	6th EUROPEAN CONFERENCE ON RHEOLOGY Prof. Dr. H. Münstedt, Institute of Polymer Materials, -eurheo 2002-, University of Erlangen-Nürnberg, Martensstr. 7, D-91058 Erlangen, Germany. T: +49-9131-8528593 F: +49-9131-8528321 E: erc2002@www.uni-erlangen.de Info: www.lsp.uni-erlangen.de/eurheo2002/
2002	
9-11 Sep Edinburgh UK	Faraday Discussion 123: Non-Equilibrium Behaviour of Colloidal Dispersions University of Edinburgh Info: www.chemsoc.org/CFCONF/alldetails.cfm?ID=6413
24-27 Sep Lyon France	3rd World Congress on Emulsions CME (Scientific Committee) 50, Place Marcel Pagnol 92100 BOULOGNE-BILLANCOURT FRANCE T: + 33 1 47 61 76 89 F: +33 1 47 61 74 65 E: alain.lecoroller@wanadoo.fr Info: www.cme-emulsion.com
24-27 Sep Cachan France	4th international conference on Materials Processing Defects Luc Chevalier, LMT-Cachan, 61, avenue du Président Wilson, 94 235 CACHAN CEDEX (FRANCE) T: +33 1 47 40 21 76 or 1 47 40 53 33 F: (33) 1 47 40 22 40 E: mpd4@lmt.ens-cachan.fr Info: tuchan.lmt.ens-cachan.fr/mpd4/
25-26 Sep London UK	Slow Dynamics in Soft Matter: Common Structures in Diverse Systems , Royal Society Discussion Meeting, Info: www.royalsoc.ac.uk/events/disc_mee_02.htm E: discussion.meetings@royalsoc.ac.uk
13-17 Oct Minneapolis USA	74th Annual Meeting of The Society of Rheology Info: www.rheology.org
17-22 Nov New Orleans USA	ASME Advances in Materials Processing Science Info: www.engr.twsu.edu/DrSiginer/asmenew.htm T: 1 316 978-3400, F: 1 316 978 3853 E: siginer@engr.twsu.edu
17-22 Nov New Orleans USA	ASME Rheology and Fluid Mechanics of Nonlinear Materials Info: www.engr.twsu.edu/DrSiginer/asmenew.htm T: 1 316 978-3400, F: 1 316 978 3853 E: siginer@engr.twsu.edu
2003	
6-10 July Honolulu USA	FLOWS IN MANUFACTURING PROCESSES Advances in Materials Processing Science Info: www.engr.twsu.edu/DrSiginer/asmehawaii.htm T: 1 316 978-3400, F: 1 316 978 3853 E: siginer@engr.twsu.edu

COURSES

2002	
25-27 Mar Wrexham GB	INDUSTRIAL APPLICATIONS OF RHEOLOGY Dr Rob English, North East Wales Institute, Wrexham LL11 2AW, UK T: +44 (0)1978 293417 F: +44 (0)1978 293370 E: englishr@newi.ac.uk
8-9 Apr Malmö SE	INTRODUCTION TO ADVANCED RHEOLOGY Presented by Annika Sahlström, MSc Calmia AB, Box 2161, SE-220 02 Lund, Sweden T/F: +46 (0)46 211 00 20 E: calmia@calmia.se Info: www.calmia.se
10-11 Apr Malmö SE	GELS, GELLING & THICKENERS Presented by Dr James Goodwin & Dr Paul Reynolds Calmia AB, Box 2161, SE-220 02 Lund, Sweden T/F: +46 (0)46 211 00 20 E: calmia@calmia.se
15-16 Apr Malmö SE	BASIC PRINCIPLES OF COLLOID AND INTERFACE SCIENCE Presented by Prof Tharwat Tadros Calmia AB, Box 2161, SE-220 02 Lund, Sweden T/F: +46 (0)46 211 00 20 E: calmia@calmia.se
21-24 Apr Malaga Spain	8TH EUROPEAN SCHOOL OF RHEOLOGY Rheology for the Process Industries. Directed by Prof. C. Gallegos and Dr N.E. Hudson E: europeschool@uhu.es
24-26 Apr Reading UK	APPLICATIONS OF FOOD TEXTURE & RHEOLOGY Dr B Dobraszczyk, Dept Food Biosciences, The University of Reading, Whiteknights, Reading, RG6 6AP, UK T: +44(0)118 9318714; F: +44(0)118 9310080 E: b.dobraszczyk@reading.ac.uk Info: www.info.reading.ac.uk/ShortCourses/CourseSummary
3-7 Jun Ross Priory UK	THEORETICAL, EXPERIMENTAL AND INDUSTRIAL ASPECTS OF RHEOLOGY Dr NE Hudson, Dept P&A Chemistry, University of Strathclyde, 295 Cathedral Street, Glasgow, UK T: +44(0)141 5482162; F: +44(0)141 5484822 E: n.e.hudson@strath.ac.uk
11-15 Nov Glasgow UK	PROCESS RHEOLOGY Dr NE Hudson, Dept P&A Chemistry, University of Strathclyde, 295 Cathedral Street, Glasgow, UK T: +44(0)141 5482162; F: +44(0)141 5484822 E: n.e.hudson@strath.ac.uk
T: Telephone; F: Facsimile; E: Email; Info: WWW URL	

AIMS OF THE SOCIETY

The way liquids flow and solids deform affects all aspects of life.

Extraction and processing of crude oil, moulding of plastics, use of toothpaste, spreading of margarine, painting and the lubrication of joints in the human body are all examples of processes depending upon rheological behaviour. Rheology is defined as the science of the deformation and flow of matter.

If your work is concerned with rheology in any way, then you have much to gain by joining the British Society of Rheology - publications, conferences and access to fellow members who, while working in a different discipline or industry, may be facing similar problems to yours.

The Society is non-profit making and is registered as a charity.

Bohlin half page advert here