

HYDROMAG newsletter

Issue 2/1996

Edited by Philippe Marty

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It is a pleasure to forward the second issue of the quarterly published HYDROMAG Information Letter. I take this opportunity to thank all the people who have sent informations to be published in this issue. In particular, I would like to thank the HYDROMAG correspondants. Finally I would like to invite every reader of this message to consider the HYDROMAG Letter as its own mean of communication with the Worldwide Magnetofluid community. Feel free to send me the e-mail address of your colleagues willing to receive this Information News letter (send your request at marty@img.fr).

1- Report of the HYDROMAG Council meeting in Jerusalem

(From Dr. A. Thess, General Secretary)

The annual meeting of the Council of HYDROMAG was held on 28 February 1996 in Jerusalem. The meeting, chaired by HYDROMAG president R. Moreau, was intended to review the process of creation of HYDROMAG and to define the future activities.

HYDROMAG has now a network of Assistant Treasurers, accepting membership applications from all over the world, a World Wide Web page:

<http://www.tu-dresden.de/mwism/hydromag/home.html>

containing information about our organization, and, last but not least the HYDROMAG-newsletter that you are about to read.

However, much remains to be done, which requires the input of new ideas and the help of everybody interested in hydromagnetics. In particular, the meeting came to the conclusion that in order to transform the image of hydromagnetics into that of a modern, innovative and original discipline of fluid mechanics, and to attract more interest from the industry, we must extend the scope of our publications beyond the purely scientific journals, publishing highlights of our research in popular journals as well as journals of national and international professional societies. Also, we need original ideas for subjects of future workshops, summer schools, colloquia and other meetings to be held under the auspices of HYDROMAG. Most importantly, however, we need new individual and corporate members, because only with a sound financial basis will HYDROMAG be able to support and to promote new ideas and the new image of hydromagnetics.

2- Messages from the Chairmen of the Hydromag Committees

From Prof. U. Muller, Chairman of the Conference Committee:

The "Conference Committee" has proposed to the Council a quality definition for conferences, colloquia, workshops under the auspices of HYDROMAG. It has also set up a few basic guidelines for the organizers of MHD-meetings to obtain approval by Hydromag. The Council has, in principle

approved the proposals of the conference committee and asked the committee to develop an "official guideline" for the organizers of conferences and other MFD-Meetings on how to submit their proposals and requests for support from HYDROMAG.

From Prof. H.Branover, Chairman of the LMMHD Committee:

The "LMMHD Committee" met on February 27th, 1996 (during the 8th Beer- Sheva International Seminar on MHD Flows and Turbulence held at the Israeli National Academy of Sciences in Jerusalem between February 25-29, 1996. The following members participated: Prof. Rene Moreau (France), Prof. Paul Lykoudis (Greece and USA), Prof. Oleg Lielausis (Latvia), Dr. Peter Davidson (UK), Prof. Yuri Gelfgat (Latvia), Dr. Andre Thess (Germany), Dr. Shaul Lesin (Israel), Dr. Yeshayahu Unger (Israel). The meeting was chaired by Prof. Herman Branover (Israel), Vice President of HYDROMAG. Two major issues have been discussed in detail:

- Building a world-wide data base of researchers working in Liquid Metal MHD.
- Promotion of awareness about the technological potential of Liquid Metal MHD among industrialists and general public.

The data base will be completed by June or July 1996. Contents and structure of a number of articles on the potential of Liquid Metal MHD have been discussed. Prof. Paul Lykoudis will coordinate the work on the first large review article.

From Dr. O.Lielausis, Chairman of the Publication Committee

It has been agreed that , in the future, Proceedings of the Hydromag Conferences could be published by Kluwer Academic Publishers. Prof. Rene Moreau has agreed to establish contacts with Kluwer.

3 - Proposal for a Hydromag Summer School

The Conference committee is currently discussing the possibility to held a Summer School during the summer 1998 or 1999. Subjects like CFD, turbulence modelling, electrochemistry, solidification or flow control should be included in the scientific topics. Peter Davidson (UK) is in charge of the project.

4- Report on the dynamo meeting in Orme des Merisiers, France (From Dr. A.Aleman and Ph. Marty, France)

On March 22, 1996, has been held a meeting devoted on the assessment of knowledges and needs in the field of Dynamo. It has gathered people from Fluid Mechanics as well as from Geophysics. A particular attention has been paid to the possibility to start an experimental dynamo project which should be complementary of those being currently tested in Riga and Karlsruhe. A working group composed of scientists from the CEA (French Atomic Agency) and of the CNRS (Agency for Scientific Research) has been formed with the aim to promote a liquid metal experimental dynamo prototype.

5 - Report on the 8th BEER-SHEVA International Seminar On MHD Flows And Turbulence

(from Prof. H.Branover, Israel)

The Seminar was held at the Israeli National Academy of Sciences in Jerusalem between February 25-29, 1996. 139 specialists from 19 countries participated and

presented 175 papers. According to notes of Sessions chairmen, the following constituted the highlights of the Seminar. Regarding MHD power generation technology, the paper of Prof. A. Sheindlin (Russia) was singled out. Despite the present stagnation in this area, Prof. Sheindlin anticipates a triumphal comeback of this technology in a not distant future. In the field close to the above, another Russian work caused great interest, namely - the paper by Kagan, Krechetova and Shpilrain of Moscow Institute of High Temperatures. The work deals with thermo-physical properties of liquid-metal working fluids - 2- and 3-component alloys with working temperatures (in the liquid phase) between 200K and 1800K.

In the Flow phenomena group of papers, the work by Moreau (France) on a new model of a liquid metal jet generated by a specially arranged magnetic field was found very interesting. Among papers on new methods of measurements, the work by Reshotko (USA) on "A new sensor for wall shear stress measurements" was found interesting and useful.

In turbulence research the papers by Wynansky (Israel) on Boundary layer separation control and by Nosenchuck and Braun on Drag reduction using MHD forces caused much interest. The role of helicity in atmospheric and MHD turbulence was investigated by Moiseev (Russia) and Branover and Eidelman (Israel); Spiral flux-tubes have been studied by Budger and Moffatt (UK), and Negative viscosity was analyzed by Sukoriansky, Chekhlov and Galperin (Israel).

It was emphasized that much progress was done in sea-water MHD (Meng (USA), Thibault (France)). More specifically, the effect of turbulence and of micro-bubbles in the boundary layer of MHD thrusters was much better understood.

All together, many participants expressed the view that this was the most successful Beer-Sheva Seminar till now and that the deliberations at the Seminar made a very important impact on future MHD research in a variety of areas.

6 -Post-Doctoral Position in Cambridge

(from Dr. Peter Davidson, UK)

University of Cambridge - Department of Engineering

Applications are invited for two (possibly three) Post-Doctoral positions within Cambridge University Engineering Department. The positions are funded by EPSRC and DRA. One will commence in July of this year and the remainder towards the end of the year. The research projects are concerned with the fluid mechanics and magnetohydrodynamics of liquid metals, and each will last for three years. Both theoretical and experimental work will be involved.

The ideal candidate should have a sound theoretical understanding of fluid mechanics. Applications are welcome from engineers, applied mathematicians and physicists. The salary is age related and in accordance with EPSRC scales.

Written applications, including a full CV and the names and addresses of three referees, should be sent to:

Dr P A Davidson, Department of Engineering, University of Cambridge, Trumpington Street, Cambridge, CB2 1PZ.

Further information may be obtained by calling Dr Peter Davidson on 01223 332706. The closing date for applications is 10th May.

The University follows an equal opportunities policy and aims to achieve the highest quality in teaching and research.

7 - MHD research activity at Lulea University of Technology

(from Hans Akerstedt, Sweden)

At Lulea University of Technology, division of fluid mechanics, research in MHD with metallurgical applications has been started during the last year. Especially MHD applications to the belt strip casting process are considered. In the belt strip casting process, liquid metal is fed with several possible techniques on to a single horizontal belt that runs between two rollers. The bottom of the belt is cooled by water. Critical factors for the quality of the solidified steel are the flow and solidification conditions of the liquid metal at the feeding point. In the research project we are studying the effects of a transverse DC magnetic field on the fluid flow on the moving belt. Especially braking and stabilizing effects are of interest. We also have plans to study confinement of the liquid metal by electromagnetic forces. Information of MHD research at other universities in Sweden will be reported in forthcoming issues of the HYDROMAG letter.

8 - About the PAMIR Conference

(from Dr. Ph. Marty and A.Aleman, France)

In the previous Hydromag Letter, it has been announced that the next PAMIR Conference "Transfer Phenomena in Magnetohydrodynamic and Electroconducting Flows" will be held in Aussois, France, from September 22 to 26th. Please note that it will be in September 1997. The Call for papers is being forwarded and a WWW page will be soon available on: <http://www.legi.img.fr/legi/pamir.html>

9 - Message from HYDROMAG-Ukraine

Professor Alexander Raitchenko, from the Ukrainian branch of Hydromag has recently sent a letter to our President in which he expresses the readiness of Ukrainian scientists to cooperate with western countries. This collaboration could have the form of common publications or exchanges of scientists or doctoral students. For further informations, please contact Prof. Raitchenko at: post@ipms.kiev.ua (phone: 044-444-2255 , Fax: 044-444-2078).

10 - Information on ICMF8

(From Prof. S. Charles, UK)

The next International Conference on Magnetic Fluids (ICMF8) is to be held in the summer of 1998 at Timisoara, Romania. For further information please contact Dr. L Vekas of the Technical University by FAX (-40-56-190321) or e-mail vekas@mec.utt.ro. At the present time the International Steering Committee of Magnetic Fluids consist of 14 members, representing most, but not all, countries in which research on Magnetic Fluids takes place. If anyone wishes to find out what activities are taking place in a particular country one is advised to contact the appropriate member of the Steering Committee or inspect the proceedings of the previous International Meetings which are published in the Journal of Magnetism and Magnetic Materials. In each of the proceedings an updated bibliography and list of patents is given. The names and addresses of Committee members can be obtained from Dr. L Vekas or Dr S W Charles (FAX: 44 1248 370528 and e-mail k.spencer@bangor.ac.uk).

11 - Correction to the News Letter #1

Following a typing mistake, please note that the correct electronic address of Dr. R. Boivin in Canada is: boivinr@cerca.umontreal.ca

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[Back to HYDROMAG home page](#)

[Back to HYDROMAG news](#)

Put on WWW: 15 May 1996, Andre Thess