



Dear colleagues and colleagues to be,

As president of the DYMAT Association I am contacting you to give you some up-to-date information about the activities of the Governing Board (GB) in the last few months. During the last GB meeting which took place in the Royal Academy of Science in Brussels on the 1st of October, the necessity to keep DYMAT members informed about the main activities and decisions of the Governing Board were discussed. This communication gives a résumé of the more important activities of the DYMAT Association and invites you to collaborate in some of them, if they interest you.

As you will most probably be aware, the actual Administrative Council of DYMAT was elected at the General Assembly in Metz last July which coincided with the very successful 15th Technical Meeting there. At the moment, the Council is made up as follows: one member from each of Germany, Belgium, Poland, Portugal and Spain, three members from U.K. and eight members from France. This spread of membership illustrates the European character of the organisation, although, I think, we need to improve the representation of other countries with members whose research coincides with the interests of DYMAT, in such a way that the Association can be of more value, better known and recognized.

During the General Assembly some members discussed the idea of developing contacts with other Associations, some with similar activities. With this intention, a viable contact, with ESIS (European Structural Integrity Society) was made. Last July I profited from a visit to Dr Hugh MacGillivray (at Imperial College) and discussed possible collaboration with ESIS. Dr Hugh MacGillivray, a member of both the Dymat and ESIS Associations, had agreed to assist in this collaboration. One joint meeting has been held at Imperial College very recently.

Another small embryonic group has been created to try and interface with a sub-group of the ICFG (International Cold Forging Group); this group is working on a report on Constitutive Equations which should be of value to their Numerical Methods group.

In other ways, members of DYMAT are developing efforts to create sub-groups within DYMAT. The proposal is to network contact between university and college researchers and people from industry in particular themes of joint interest. At the moment, the LWAG (Light-Weight Armour Group), started by Dr Bradley Dodd, is very successful (see <http://www.lightarmour.com>) and Philippe Viot is developing a Security in Transport group. Also there is another sub-group: Failure Mechanisms in Dynamic Processes and their Causes, which began three months ago. Members of DYMAT, and other interested persons, are invited to integrate and collaborate with these groups

Here I can mention to readers the 16th Technical Meeting of DYMAT, whose topic is *Dynamic material behaviour related to security applications (personal protection, explosive effects on structures)*, this has been prepared in collaboration with the Royal Academy of Science in Belgium and will be held on 27-28 of October 2005 in Brussels. At the same time the 8th International Conference on Mechanical and Physical Behaviour under Dynamic Loading is also being prepared in Dijon between the 11th and the 15th of September 2006. Details of these two events can be obtained in the DYMAT site soon (<http://www.dymat.org>).

If anyone wishes to obtain more information on any of these activities please write to enquiries@dymat.org.

I profit this occasion to wish a Merry Christmas and a Happy New of 2005

Best Regards,

MINUTES OF THE DYMAT ASSOCIATION GENERAL ASSEMBLY HELD AT METZ, FRANCE, JUNE 1, 2004

1. President's report

José Cirne first congratulated Alexis Rusinek and the other members of the local organising committee for the work done in organising the 15th DYMAT Technical Meeting.

Jose Cirne reported to the General Assembly that during the eight months since the assembly had last met, the DYMAT Governing Board continued to develop the activities for which the DYMAT Association had been created. The Board had had two meetings (both in Paris) and which the following subjects had been discussed:

(a) The DYMAT 2003 International Conference held in Porto. This had a final budget of about 15,000€ and the participation of about 160 delegates. Feedback had been received in the form of two reports to their respective institutions, one from Rusty Gray of Los Alamos National Laboratory, USA and the other from delegates from QinetiQ, United Kingdom. Both these reports indicate that the quality of the communications was in general good. We believe they are both good summaries of the event.

(b) Matters connected with the preparation of the 15th DYMAT Technical Meeting at Metz and the 2006 International Conference at Dijon.

(c) The possibility of creating subgroups inside DYMAT to facilitate links with other associations or institutions. For example, Bradley Dodd proposed creating a link with the International Cold Forging Group. Another subgroup could be concerned about Test Recommendations. The Governing Board is open to such proposals and contributions and interested in finding volunteers who would dynamize such subgroups.

(d) Much effort was put into modifying the DYMAT website and making it more efficient. Jose Cirne said he thought it was now working very well (for example, the number of hits was increasing) and thanked Michel Epinette and Bradley Dodd for their work.

2. Vote to accept the President's report

The President's report was accepted by the Assembly with no objections.

3. Election of the Board

Carlos Navarro and Michel Stelly have decided to stand down from the Board. No letter of candidature had been received from Maurice Leroy. A letter from Carlos Navarro explaining his decision and wishing the Association well was read out by Jose Cirne. Five present members and three new candidates had presented themselves for election to the eight places: Couque (France), Dyckmans (Belgium), Lach (Germany), Llorca (France), Nowacki (Poland), Rusinek (France), Thomas (France), Zaera (Spain). 32 valid votes and proxies were cast by those present at the Assembly. Six of the candidates received 32 votes

(Dyckmans, Lach, Llorca, Nowacki, Rusinek, Zaera), two of the candidates received 31 votes (Couque, Thomas). All candidates were therefore elected to the Board.

The DYMAT Governing Board for 2004/5 therefore consists of the following people: José Cirne (Portugal), Hervé Couque (France), Bradley Dodd (UK), Richard Dormeval (France), Gunther Dyckmans (Belgium), Gérard Gary (France), Erhardt Lach (Germany), André Lichtenberger (France), Fabrice Llorca (France), Hugh MacGillivray (UK), Wojciech Nowacki (Poland), Alexis Rusinek (France), Thierry Thomas (France), Philippe Viot (France), Stephen Walley (UK), Ramon Zaera (Spain).

LIGHT WEIGHT ARMOUR GROUP

Organized by Erhardt Lach in the Institute Franco-Allemand de Recherches de St Louis, occurred more a meeting of this subgroup last September. The list of the communications and attendees is as follow:

Oral presentations of the 2nd Light-Weight Armour Workshop at the ISL, 3rd September 2004

- *Light-Weight Armour against Medium-Calibre KE-threat*, **H.-J. Ernst**, ISL, Saint Louis
- *Aspects of Electromagnetic Active Protection Systems*, **V. Zorngiebel**, **K. Sterzelmeier**, ISL, Saint Louis
- *Ceramic-Glass-Plastics Composites for Efficient Transparent Armour*, **E. Straßburger**, Ernst-Mach-Institut, Holzen
- *Light Gas Guns – Launching Technology and Diagnostics*, **M. Junginger**, Ernst-Mach-Institute, Wintersweiler
- *Protection Technologies and Protection Materials for Manned Spacecraft*, **F. Schäfer**, **M. Junginger**, Ernst-Mach-Institute, Freiburg
- *A dynamic company which can meet your most ambitious needs* **Jerome Mespoulet**, **Patrick Thiot**, Thiot Ingenierie, Saint Michel Loubejou
- *Light-Weight Armour Materials under High Strain Rate Loading Conditions: Test Techniques and Experimental Results*, **H. Nahme**, Ernst-Mach-Institute, Freiburg
- *Development of High-Strength Magnesium Alloys by Consolidation of Rapid Solidified Ribbons*, **D. Shechtman**, Technion University, Haifa, **A. Ben-Artzy**, Rotem Industry, Beer-Sheva
- *Development and Application of Magnesium Alloys*, **Fr.-W. Bach**, **M. Schaper**, **A. Roßberg**, Tech. University of Hannover
- *Development and Fabrication of Metal Matrix Composites with Tailored Reinforcement Architecture For Potential Use in Light-Weight Armour Application* **O. Beffort**, EMPA Thun
- *The METCOMB-Process: a Melt Based Foaming Techniques by Gas Injection*, **D. Leitmeier**, Leichtmetall Kompetenzzentrum Ranshofen
- *Ballistic Performance of Lightweight Armour Based on Reinforced Aluminium Foam*, **J. Jerz**, **F. Simancik**, Institute of Materials and Machine Mechanics, Slovak Academy of Sciences, Bratislava



- *Aluminium Foam - Alulight for Light-Weight Armour Applications*, P. Schäffler, Alulight, Ranshofen
DYMAT WEB PAGE

The domain www.dymat.org still being actualized by the arduous and perseverant work of Bradley Dodd and Michel Epinette from CTA, in Paris.

Miscellaneous

In this topic we are including some information collected by the members of the Governing Board, mainly by Stephen Walley, that can be useful for people interested in the study of the behaviour of materials under dynamic loading.

Website

The following site contains a wide range of shock-wave, Hugoniot and equation-of-state data:
<http://teos.ficp.ac.ru/rusbank/>

Books

- "Shock-Wave Phenomena and the Properties of Condensed Matter", G.I. Kanel, S.V. Razorenov, V.E. Fortov. publ. Springer, 2004, ISBN 0387205721
- "Spall Fracture", T. Antoun, L. Seaman, D.R. Curran, G.I. Kanel, S.V. Razorenov, A.V. Utkin, publ. Springer, 2003. ISBN 0387955003
- "High Pressure Shock Compression of Solids" ed. V.E. Fortov, L.V. Altshuler, R.F. Trunin, A.I. Funtikov, publ. Springer, 2004. ISBN 0387205756
- "Cratering in Marine Environments and on Ice" ed. H. Dypvik, M. Burchell, P. Claeys, publ. Springer, 2004. ISBN 3540406689

- "Synthesis, Characterization and Properties of Energetic/Reactive Nanomaterials", ed. R.W. Armstrong, N. Thadhani, W. Wilson, J. Gilman, R. Simpson, publ. Materials Research Society, 2004.
- "Proceedings of the First International Conference on High Speed Forming", ed. M. Kleiner. publ. University of Dortmund, 2004
- "Ceramic Armor Materials by Design" ed. J.W. McCauley et al., publ. American Ceramic Society, 2002. ISBN 157498148X
- "Formulations and Constitutive Laws for Very Large Strains" ed. J. Plešek, publ. Institute for Thermomechanics, Prague. ISBN 8085918749
- "Fundamentals of Equations of State" S. eliezer, A. Ghatak, H. Hora, publ. World Scientific, Singapore. ISBN 9810248334

Theses

- B. Banerjee** "Micromechanics-Based Prediction of Thermoelastic Properties of High Energy Materials", PhD thesis, University of Utah, USA 2002
- G.R. Willmott**, "Shock Studies of Kimberlite, Diamond and Brittle Embedded Particles", PhD thesis, Cavendish Laboratory, University of Cambridge, UK 2004
- Ruth I. Hammond**, "Shock and ballistic properties of bainitic steels and tungsten alloys", PhD thesis, Cavendish Laboratory, University of Cambridge, UK 2004