

NEWSLETTER

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Groupe International de recherche sur l'enseignement de la physique
International research group on physics teaching
Internationaler Arbeitskreis zur Förderung des Physikunterrichts

N. 18 - July 1987

This issue of the Newsletter is primarily concerned with giving information on:

- the preparation of the ICPE International Conference on teaching Modern Physics, in which GIREP is involved as sponsor, two GIREP officers being in the Consultative Committee;
- other international activities and events;
- a memorial of K. A. Thernoe;
- information on forthcoming Conferences and Meetings.

Please note: your yearfee is on the upper right-hand corner of the envelope label. The situation refers to the month of May, so you could expect some inexactitude. So please check our information with your records and inform the Treasurer if you find any inconsistencies. The membership fee has not been increased yet, but probably will be at the next Committee Meeting. Please do update your fee if you haven't done it yet.

1. THE INTERNATIONAL CONFERENCE ON TEACHING MODERN PHYSICS - CONDENSED MATTER Munchen, West Germany, 12 - 16 Sept. 1988

The First Announcement of the ICPE International Conference on Teaching Condensed Matter Physics is enclosed with this Newsletter.

GIREP is involved in the Conference in the following ways:

- GIREP is a co-sponsor and will be so named in further Circulars,
- GIREP President Paul Black and Vice-President George Marx are both members of the Conference Consultative Committee,
- They have been consulted about the Programme,
- The organizers look to GIREP to help ensure that teachers are fully represented,
- GIREP is particularly asked to help by proposing teachers who might act as Group Leaders.

The last two are important points, and we are now calling for prospective Group Leaders. If you, dear reader, are a school teacher with a special interest and/or experience in any of the Conference topics and you are willing to act as Group Leader, please inform the President Paul Black or the Vice-President George Marx.

Please take note:

- Deadline for returning the questionnaire is the beginning of September, 1987. The organizers kindly ask you to enclose a note calling their attention to the fact that you are a member of GIREP.

- The last paragraph of the Announcement is about financial support. One GIREP officer will take part in the selection of those who may be given the mentioned support, school teachers being the most likely candidates.

We also suggest that financial support may be sought locally by individual participants. The school authorities of your country may have a special voice in their budgets for this kind of expense. A letter to your local authorities enclosing a copy of the Circular and explaining your reasons for participating could be advantageous.

2. GIREP PROCEEDINGS

Proceedings of the 1986 GIREP Conference "Cosmos - An Educational Challenge"

Copies are obtainable by writing to:

Jim Hunt, c/o ESTEC, Keplerlaan 1, Postbus 299, NL-2200 AG Noordwijk zh, The Netherlands.

The price of the Proceedings is about US\$ 26 (the exact cost depending on currency exchange rates).

GIREP 1984 "The many faces of teaching and learning Mechanics"

A few copies are still available, at the cost of US\$ 20.00, from Piet Lijnse, Rijksuniversiteit, Postbus 80008, 3508 TA Utrecht, The Netherlands.

3. CALL FOR EXPERIMENTS IN A LOW-GRAVITY ENVIRONMENT

Dr. J. P. B. Vreeburg of NLR (National Aerospace Laboratory, The Netherlands) calls for proposals of demonstration experiments in micro-gravity conditions. The initiative is organized by NLR in collaboration with ELGRA (European Low Gravity Research Association).

The aim is to produce a video-film for pedagogic purposes using an aircraft in parabolic flight as low-gravity vehicle. The contemplated aircraft provides about 25 seconds of low gravity during each parabola. However, an object released inside the aircraft rarely exceeds 6 seconds of free-float before colliding with the structure. This poses a limit to the type of experiment that can be performed successfully. Another constraint derives from the safety aspects of manned flight.

Although the proposals should have been submitted by the end of June 1987, NLR and ELGRA are willing to consider ideas arriving after that date from teaching professionals as so many of the members of GIREP are.

The rating of ideas will be by peer review and expert advice on instructional value. In order to achieve this, the received proposals will be distributed, as a book of abstracts, to each

proposer (who will hereafter be called "sponsor"). The submitted ideas will also be presented and discussed on the 2nd day of the ELGRA Annual Meeting, Zurich, 1-3 Sept 1987. Final selection will be made before mid-september on the basis of majority vote by the sponsors, taking the experts' advice and the availability of funding into account.

Preparation for the video film will start immediately and a first series of tests in parabolic flight is planned for the end of 1987. The actual flight campaign is scheduled late in 1988.

The testing and performance of the experiments will take place on NASA's KC-135 special jet aircraft stationed at Houston, Texas, preferably by the sponsors themselves. Medical examination and a short training course are therefore needed, but experienced ESA-ESTEC staff is available to aid or replace the sponsors if necessary.

ELGRA will provide management and coordination of the project and will seek to raise funds or obtain professional help for the production of the video-film but will not be able to finance the realization of the proposed experiments. Consequently the selected sponsors will have to ascertain their own funding. This is possible, at least in some countries, through support by National Space Agencies. In return for their contribution the sponsors will get copies of the film for non-commercial and limited audience showings.

For your convenience a Proposal Form is enclosed to this Newsletter. Further information may be obtained from:
J.P.B. Vreeburg, National Aerospace Laboratory NLR, P.O.Box 90502, 1006 BM Amsterdam, The Netherlands, tel. 31-20-5113113.

4. IN MEMORY OF DR. K. A. THERNOE (contribution by Poul Thomsen)

Dr. K. A. Thernoë died on 7 March 1987, 76 years old. As a very conscientious treasurer of GIREP in the years 1972 to 1979 he will be known by a large number of GIREP's members. He spent a lot of his time and energy on GIREP matters. When he agreed to serve as treasurer in 1972 GIREP's accounts were in a bad shape and it is not least because of his achievement that GIREP in the following years developed into the well organized association of today.

K. A. Thernoë and I worked closely together during those years (I serving as president in the same period). He was always ready to offer his help, also for obscure and time-consuming work such as proof-reading the Proceedings of the GIREP Venice Conference (1973) and personally mailing to members the Proceedings of the GIREP Montpellier Conference (1976), sent to Denmark from the English publisher, from the post office of the Free Harbour of Copenhagen in order to avoid paying customs.

K. A. Thernoë's major field of interest was astronomy. He worked from 1936 to 1966 at the Observatory of the University of Copenhagen and from 1961 to 1964 he was leader of the

International Astronomical Central Bureau. In 1966 he became associate professor at the Physics Institute of the Royal Danish School of Educational Studies. Here he was able to use his professional knowledge of astronomy on educational problems and to try to transfer his own enthusiasm for astronomy to his students. After his retirement in 1982 he continued to work on one of his original ideas: a planetarium which would not need a special building but only a large hall with a screen. He was disappointed at not being able to prepare a convincing demonstration of his prototype at the GIREP Conference in August 1986 in Denmark, but in the autumn he and his collaborators managed to prove in practice that the prototype, correctly programmed, would work in accordance to K. A. Thernoe's ideas.

K. A. Thernoe's name will never be forgotten. The International Astronomical Union has seen to that. A few years ago they decided to give a newly discovered planet his name, in honour of his achievements as an astronomer.

5. NEW ASSOCIATIONS

Asian-Pacific Physics Teachers and Educators Association (contributed by Richard Gunstone)

At a UNESCO-sponsored workshop on the training of Physics teachers in Manila late in 1986, this new association was formed.

Physics educators from 11 countries in the Asia-Pacific region were involved in establishing APPTEA, and in determining its objectives to be to:

- a. promote the development of secondary school physics education and physics teacher education in the Asia-Pacific region;
- b. undertake regional programmes of cooperation among members and assist in national programmes on secondary school physics education and physics teacher education;
- c. establish linkages and jointly sponsor programmes with regional and international agencies and associations concerned with physics education;
- d. disseminate information on physics education at the secondary school and teacher education levels.

Thus far, APPTEA has:

- (a) joined with the Asian Physics Education Network (ASPEN) in the planning of ASPEN's first General Conference - a Regional Physics Education Symposium to be held in Kuala Lumpur, Malaysia, 14-17 October 1987. This Conference will focus on regional issues and trends in university physics education, with particular emphasis on school to university transition;
- (b) begun planning a cross-cultural research project on students' conceptions.

The membership fee for APPTEA is \$US 5.00 per annum, which can be sent to the Treasurer (or any of the officers of the association, see below). Any inquiries about APPTEA and its activities can be addressed to any of the officers.

The association's officers are:

President: Dr. V. Talisayon, Institute of Science and Mathematics Education Development, University of the Philippines, Diliman, Quezon City 3004, Philippines.

Vice-President: Dr. Pak Sung Jae, College of Education, Seoul National University, Seoul, Republic of Korea.

Secretary: Mrs. E. Rodriguez (address as for President).

Treasurer: Mr. C. Pattanasuwan, IPST, 924 Sukhumvit Road, Bangkok, Thailand.

Auditor: Mr. N. Kotandeniya, Curriculum Development Centre, Ministry of Education, 255 Baudhaloka, Mawatha, Colombo 07, Sri Lanka.

Public Relations Officer: Dr. R. Gunstone, Education Faculty, Monash University, Clayton, Victoria, 3168, Australia.

Teacher in Space Education Foundation - USA (from ICASE June Newsletter)

112 teachers ("Teacher in Space" finalists) have formed TISEF to enhance the partnership between education and the space program. The teachers are representative of all teaching areas - from kindergarten to high school: Special Education, Spanish, English, Science, Math, Social Studies, etc. TISEF is not a technical science organisation: the hope is to use space as a motivation for multidisciplinary teaching.

The goals of TISEF are:

- to enhance the stature of teachers and the teaching profession;
- to promote the exploration of space as a catalyst for interdisciplinary learning;
- to recognise and nurture innovative teachers and pioneering strategies;
- to provide professional growth opportunities for exploration into space-age frontiers;
- to promote space program technology transfer to the classroom;
- to network between space-age programs and associations and NASA;
- to support NASA's ongoing lessons to be taught from space;
- to encourage, through the education community, international cooperation in space.

A magazine - ET², Educators Today Touching Tomorrow, will be published by the foundation. To obtain more information please write to:

Terri Adams, Executive Director TISEF, 1110 Vermont Ave., NW, Suite 710, Washington D.C. 20005, U.S.A.

6. REPORTS ON INTERNATIONAL EVENTS

The IX Journées Internationales sur l'Éducation Scientifique, Chamonix, 3-5 February 1987 (contributed by J-L. Martinand)

This year as in the past, the International Days attracted 300 participants and brought together in Chamonix (France): physics, chemistry and biology school-teachers, university researchers on the didactics of the experimental sciences and, also, specialists in other fields.

The topic, Models and Simulation, is of growing interest and importance in the pure and applied sciences.

Three plenary sessions hosted reports on the following aspects of the main topic:

- spontaneous models, models in common thinking, childrens' ideas;
- examples of uses of simulations in science and technology;
- results and trends of research into activities involving model-making and simulations in education.

Parallel sessions (in which 80 papers were presented and discussed), an exhibit of computer software and audiovisual materials and a poster session gave the participants the opportunity to compare experiences and to exchange information.

The Proceedings (in french) will be in print by the end of September 1987. (The Proceedings of previous editions of the Journées Internationales are also available. Titles are: "Theory and practice of experimental processes", "Concept building processes in physics", "The diffusion of scientific knowledge through teaching and popularization", "Informatics and science education", "What kinds of research to renew science teaching", "Signs and communication in the teaching and popularization of science", "Science education and the education for the working life", "Scientific thinking and everyday life".)

The next edition of the Journées Internationales will be held in Chamonix from 26 to 28 January 1988. The topic will be:

Communication, Education et Culture scientifiques et industrielles: Innovations et Recherches.

As always, the working language will be french. For further information and if you wish to buy the 1987 or former Proceedings, please contact:

A. Giordan et J-L. Martinand, Comité d'Organisation des Journées de Chamonix, Université PARIS 7, UER de Didactique des Disciplines, 2 place Jussieu, 75251 PARIS cedex 05 (France)

7. FORTHCOMING CONFERENCES

Inter-American International Conference on Physics Education - Oaxtepec, Mexico, July 1987 - endorsed by AAPT, APS, ICPE, CLAF, UNESCO and the Organization of American States

The general goal of this Conference is to help organize regional networks by providing helpful information, opportunities for exchange of ideas and comparison of experiences, and encouragement of post-conference cooperative efforts in order to produce or improve didactic materials, teacher training and research on physics education. As much practical, "hands-on" experience as possible will be provided by pre-conference workshops, poster sessions, exhibits etc. Dissemination of results will be by Conference Proceedings, journal articles and video tapes.

Contact: J. Barojas Weber, Organizing Committee, Inter-American Conference, Dep. de Física, UAM-Itzapalapa, 09340 Mexico D.F., Mexico.

Symposium on Research on Physics Education and its Implications for Teaching - Satellite Meeting of EPS-7 in cooperation with EPS Advisory Committee on Physics Education and the Teaching Section of the Finnish Physical Society - Helsinki 5-7 August 1987

Aims: a. looking for the interaction between empirical and theoretical research; b. giving an opportunity for interaction between physicists, teachers etc.

Items of discussion: aims in physics teaching; ways of research on teaching physics; learning from nature; problem solving; evaluation; role of research in teacher education.

Head of Program Committee: Joseph Depireux, University of Liege (Belgium).

Proceedings: will be published in the Series of Research Reports, Dept. of Teacher Education, University of Helsinki.

Further information from: Prof. V. Meisalo, Dept of Teacher Education, University of Helsinki, Ratakatu 2, SF-00120 Helsinki, Finland, telex 124690 UNIH-SF.

Science and Technology Education and the Quality of Life, Kiel, West Germany, 4-12 August 1987 - Organized by IOSTE (International Organization for Science and Technology Education)

Contact: Dr. K. Riquarts, IPN, Olshausenstr. 40/60, D-2300 Kiel, FRG

II Congreso Internacional sobre Investigacion en la Didactica de las Ciencias y de las Matematicas Valencia, Spain, 23-25 Sept. 1987 - organized by "Ensenanza del las Ciencias"

Main theme: "Teaching/learning paradigms and Research in the Didactics of Science and Mathematics".

Working language: spanish

Structure: Plenary sessions, parallel sessions, workshops on the implications of research in classroom work.

Contact: Ensenanza de las Ciencias, ICE Universitat Autonoma de Barcelona, Bellaterra (Barcelona), Spain

ICASE Europe Research Seminar University of Dortmund, West Germany, 25-27 May 1988

Theme: Empirical Research in Science and Mathematics Teaching.

Contacts: Prof. Vittorio Zanetti, Dip. di Fisica, Universita' degli Studi, 38050 Povo (Trento), Italy or Prof. H-J. Schmidt, Didaktik der Chemie, University of Dortmund, Postfach 500500, 4600 Dortmund 50, FRG.

Science Education and the Quality of Life: a World Issue, Canberra, Australia, 3-9 July 1988 - Organized by ICASE and hosted by ASTA (Australian Science Teachers' Association)

The programme will focus on four major areas:

- scientific and technological developments and their impact upon our lives;
- science education and its contributions - past, present and future - to the quality of life;
- new approaches in science education related to the education of boys and girls, the education of teachers and the education of the wider community;
- science curriculum trends and issues.

Contact: ICASE World Conference Secretariat, P.O.Box E345, Queen Victoria Terrace, Canberra ACT 2600, Australia.

GENERAL INFORMATION

GIREP COMMITTEE

President Paul Black, Centre for Educational Studies, King's College London (KQC), 552 King's Rd, London SW10 0UA, UK (tel 01/3512488)

Vice-presidents George Marx, Dept Atomic Phys., R.Eotvos Univ., Puskin u. 5, PB 327, 1088 Budapest, Hungary (telex 225459, tel 361/131843)

Piet Lijnse, Rijksuniversiteit, 3508 TA Utrecht, pob 80008, The Netherlands (tel 09/3130531179)

Secretary Silvia Pugliese Jona, via San Nazario 22, 10015 Ivrea (Torino), Italy (tel 0125/49869)

Treasurer Brian Davies, The Institute of Physics, 47 Belgrave Sq, London SW1X 8DX, UK (telex 918453, tel 01/2356111)

FEES

At the time of printing, the yearly fee is still equivalent to US\$ 10.00 at the rate of exchange current at the date of application for membership or renewal of membership. The sender must pay his or her own bank charges and mailing costs. There are four possible methods of payment:

1) Fees from Italy must be paid in Italian Lire to Marisa Michelini, Istituto di Fisica dell'Universita', via Campi 213/A, 41100 MODENA.

2) Fees from countries other than Italy may be paid in Lst, made out to "GIREP account 90301248" and sent to Brian Davies, address at top of page. This is the preferred method of payment.

3) Fees from countries other than Italy or Great Britain may also be paid in Sw.Fr, preferably through bank and not by cheque, to "GIREP account 376089-91", Credit Suisse, 1002 Lausanne, CH.

4) Fees from countries where the above procedures are very difficult or impossible may be paid directly to George Marx after having agreed on a procedure with him (address at top of page).

Please note: The accounting year runs from January to January but if application forms and fees arrive after the month of September membership will - unless the applicant specifies otherwise - become effective at the beginning of the following year.

APPLICATIONS & NEW MEMBERS

Applicants for membership should please require the application form from the Treasurer.

INQUIRIES - CHANGES OF ADDRESS

Please address inquiries concerning fees to the Treasurer.

Other inquiries may be addressed to the Secretary or to any other member of the Committee.

Please send notice of changes of address to the Secretary.

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This issue of the Newsletter is printed by:

Centro Stampa, I.T.I.S. "C. Olivetti" - Ivrea, July 1987