GIREP newsletter

Groupe international de recherche sur l'enseignement de la physique
International Research Group on Physics Teaching
Internationaler Arbeitskreis zur Förderung des Physikunterrichtes

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OBITUARY

It is with deep regret that we have to inform you of the death of our past president and honorary member Karl Luchner. He died in Munich on January 6th 2001, aged 71, from cancer.
Karl Luchner studied in Munich and completed his diploma in technical physics in 1953. His doctoral thesis dealt with solid-state physics. From 1959 to 1961, he was a guest researcher at the physics department of New York University. He then returned to the physics department of the Technical University Munich where he continued his research in nuclear solid state physics, which led to valuable contributions and publications.
At that time, his interest in physics education developed. In 1974, he became the first full professor of physics education at the University of Munich. He concentrated his efforts on the education of physics teachers. This was a challenging task, because he had to set up almost all facilities. He initiated and organized national and international workshops and conferences (e.g. the IUPAP conference 'Teaching Modern Physics' in Munich in 1988). He published many articles and books. I would like to mention here only his books (in German) about 'Physics is everywhere' and 'Flying - applied physics'. From 1991 to 1994, he was chairman of the physics education group of the German Physical Society. He had many international connections and was invited to give lectures in - among other countries - Sweden, Egypt, the USA and South America. Several times, he was visiting professor in China. From 1990 to 1993, he was a member of the Editorial Board of the 'European Journal of Physics'.
In 1994, he retired from university, but his international activities increased.
From 1994 to 1996, he was a member of the ICPE (International Commission on Physics Education). In 1995, in Udine, he was elected President of GIREP until 1999. Under his presidency, the GIREP conferences in Ljubljana (1996) and Duisburg (1998) took place. During the last years of his presidency, he was already suffering from his serious illness. Nevertheless, he initiated and began to prepare the next regular GIREP conference in Lund/Sweden.
Karl Luchner's name will continue to be associated with our organization. He will be remembered as a leading promoter of the idea of the importance and internationality of physics education.

Christian Ucke/Munich

Photo C. Ucke/Munich/November 2001

Science Education in Japan and Activities in Physics Education of the Japan Society of Applied Physics

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Abstract

Current science education and educational reform in progress in Japan are surveyed. Activities in physics education of Japan Society of Applied Physics are very briefly introduced.

Introduction

The latest report of TIMSS-R (Third International Mathematics and Science Study - Repeat) was recently published by IEA (International Association for the Evaluation of Educational Achievement, headquartered: in Amsterdam, the Netherlands). According to this report, Japan is fourth in average score for science out of the 38 countries and regions surveyed.

Forty-six countries and regions participated in TIMSS carried out in 1994 - 1995, and at that time, Japan was ranked third for science in the same category (8^{th} grade which corresponds to 2^{nd} year lower secondary school in Japan). In the first study, conducted in 1970, Japan was top, and in the second, 1983, it was ranked second for science.

As the surveys are repeated, Japan's ranking, based on average score, is declining. The results of this international comparative research, accord with the fact that interest in science among Japanese lower secondary school students is gradually decreasing and many upper secondary school students dislike science, especially physics.

In this report, I would like to show you what happens in the world of school science in Japan and what the Japan Society of Applied Physics, to which the author belongs, puts into practice for science education from elementary school to university.

Chapter 1. Background to Japanese Education

As a general background, some statistics are given as follows:

Japan lies between the Pacific Ocean and the Japan Sea to the east of the Asiatic Continent. Her culture has long been influenced by the continent, but advances in communication have brought the cultures of the West to Japan as well.

Japan consists of the four principal islands - Honshu, Shikoku, Kyushu and Hokkaido - and nearly 7,000 smaller islands. The islands of Japan are mainly of seismic and volcanic origin.

The land area of 377,837 km^2 comprises 67.2% forests and grassland, 13.6% agricultural, 4.5% residential and 14.7% others as of 1995.

The total population 126,166,000 (1995 data) has an average density of 338 persons per square kilometer. In 1995 the recorded number of households was 43,900,000 and the average number of members per household was 2.82.

Distribution of employed person by industry as of 1997 was as follows.

Employees in the primary industry occupy 5.5%, including agriculture and forestry (5.0%), and fisheries (0.5%). Secondary industry employs 31.9% of the workforce. This includes manufacturing (21.6%) and construction (10.2%). Of the 61.8% employed in tertiary industry, sales, finance and real estate account for 26.4%, services, 25.4%, transportation and communications, and public services 6.2% and 3.1% respectively. The remaining 0.8% of the labor force is not specified.

The 1998 Industrial and Economic data were as follows:

Imports of machinery and equipment (30.5%), mineral fuels (15.3%), foodstuffs (14.8), raw materials (7.8%), chemicals (7.4%), textiles (6.8%), metals (5.1%), non-metals and mineral products (1.4%) and others (10.9%).

In the same year exports were electrical machinery (23.2%), transport equipment (23.2%), machinery (22.5%), chemicals (7.0%), metals (6.3%), textiles (1.9%), non-metals and mineral products (1.1%), foodstuffs (0.5%) and others (9.5%).

Economic indices in 1996 (100 at 1970 as a standard): GDP (Gross Domestic Product) 667, exports 639, imports 630, national income per capita 532. In comparison with some other countries, nominal GDP by industry in 1997 is shown below; Japan 507.85 trillion Yen, United States 8,110.9 billion Dollars, United Kingdom 803.89 billion Pounds, Germany 3,624.0 billion DM.

Chapter 2. Educational system in Japan

What principles guide Japan's educational system?

The Japanese Constitution sets out the basic national educational policy, as follows. "All people shall have the right to receive an equal education corresponding to their ability, as provided by law. The people shall be obligated to have all boys and girls under their protection receive ordinary education as provided for by law. Such compulsory education shall be free." (Article 26)

The Fundamental Law of Education (1947, Law No. 25) sets forth in more detail the aims and principles of education in accordance with the spirit of the Constitution. It establishes the following specific national principles of education: equal opportunity, compulsory education, co-education, school education, social education, prohibition of partisan political education, prohibition of religious education for a specific religion in national and local public schools and prohibition of improper control of education.

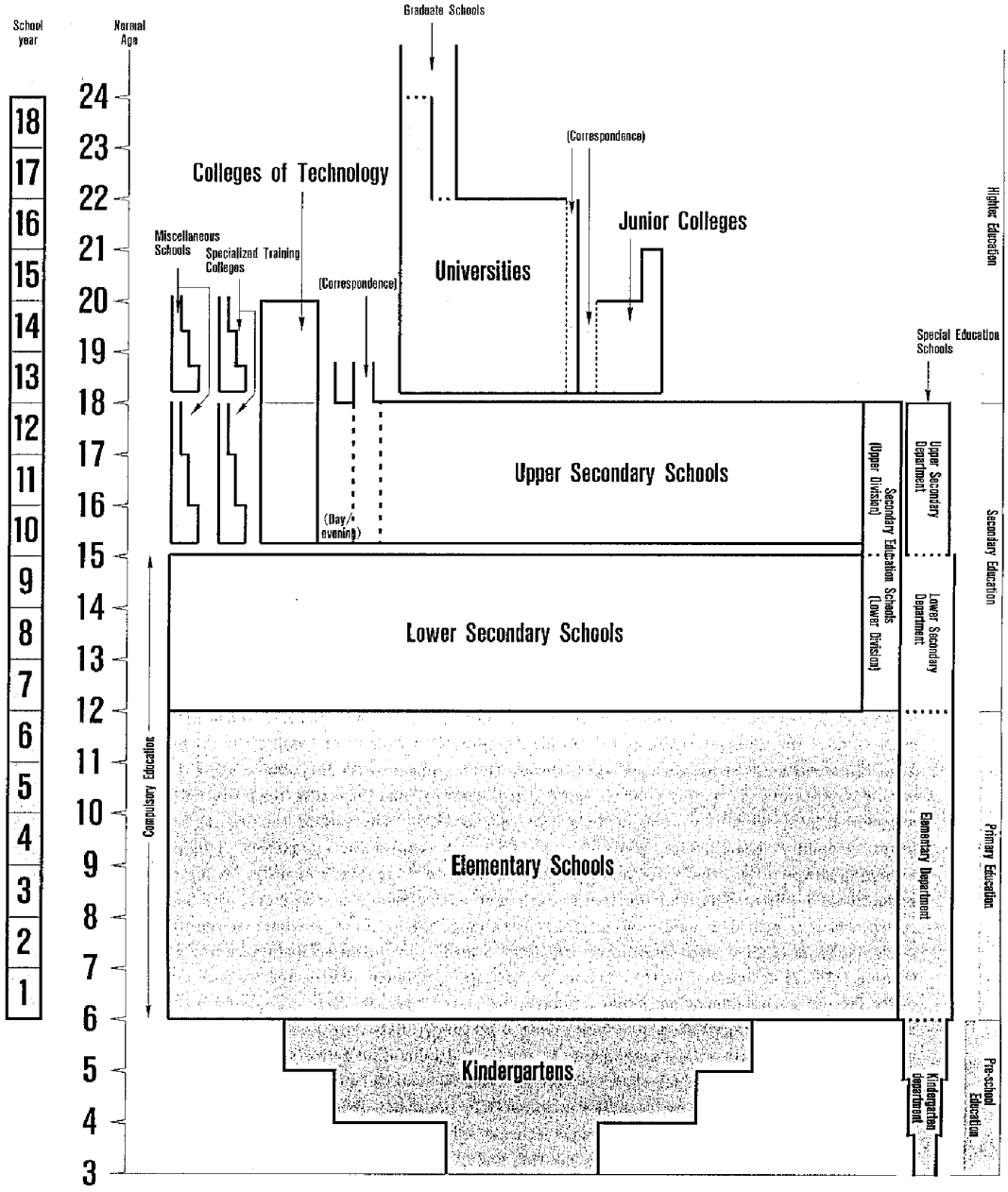
The 1947 enactment of the Fundamental Law of Education was followed by a series of educational statutes. The first of these was the School Educational Law, which further elaborated the aims, methods and principles of the new system. At present, Japanese education is, in general, established and operated on the basis of educational laws and statutes.

As in all constitutional democracies, in Japan the Constitution is the supreme law. All laws directly or indirectly affecting education must be in accordance with the basic educational provisions of the Constitution. Statutes enacted by the National Diet, cabinet orders and ministerial ordinances constitute the legal basis for education.

The Fundamental Law of Education provides basic aims and principles, and other educational laws and regulations are made in accordance with the aims and principles of this law. In addition to the Fundamental Law of Education, there are other major educational laws. These include the School Education Law dealing with the organization and management of the school system, the Social Education Law regulating the activities of social education, and the Law Concerning Organization and Functions of Local Educational Administration providing essential particulars on the system of local boards of education.

Cabinet orders are made to enforce the laws, and the Ministry of Education, Culture, Sports, Science and Technology publishes ministerial ordinances and notices concerning such matters as the standards for establishing schools and curriculum standards such as the Course of Study.

Figure 1 shows the structural organization of the present system of school education in Japan, and indicates the normal age for admission or promotion to each grade of the educational system.



Chapter 3. Course of Study

The content of education from primary to secondary is strictly controlled by the Course of Study promulgated by the Ministry of Education, Science, Sports and Culture Technology (MESSC). This Course of Study is of primary importance in understanding Japanese education not only in science, but in all subjects.

The original form of “Course of Study” in Japan was born in 1947 and revised in 1951 as a tentative plan of Ministry of Education. It was created after the model of the Courses of Study in the United States. Since the revision in 1958, it was notified on an official gazette and authorized as a standard of the curriculum in Japan, and has been revised almost every 10 years. The latest revision was in 1989. In this revision, science and social studies were discontinued from elementary school grades I and II, and a new subject "Life Environment Studies" was introduced in stead of them.

The discontinuance of "science" from the first 2 years in elementary school results in difficulties in teaching Science in the following 4 years of elementary school and not a

few topics of elementary school science were carried over to the lower secondary school curriculum.

Not all students necessarily take Physics in upper secondary school. In fact, only about 46% of upper secondary school students study Physics (estimated from the numbers of textbooks used in 1999), while the percentages for Chemistry, Biology and Earth science are respectively 96%, 81% and 18%.

As a result, a number of students are enrolled in faculties of science or technology at university who have not taken Physics in upper secondary school. Many university professors recognize that the academic ability of university students is declining year by year.

Chapter 4. Educational Reform Starting in 2002 and 2003

In the coming twenty-first century, the role of education as the basis of the social system is extremely important in developing Japan as a country with vitality and in building a nation based on creativity in science and technology and a culturally oriented nation.

In January 1997, the Ministry of Education, Science, Sports and Culture (MESSC) drafted a "Program for Educational Reform," which outlined the major points and schedule for educational reform. While respecting the progress of later measures in the Program, revisions have been made twice, in August 1997 and April 1998. The MESSC has undertaken educational reform in accordance with the four major points of this program as follows:

(1) To enhance emotional education which fosters the cultivation of rich humanity, such as a sense of right, a sense of morality and a sense of compassion, in order to encourage zest for living and secure more room for children to grow;
(2) To realize the school system that helps children develop their individuality and gives them diverse choices by breaking free from the egalitarianism which has increased to an extreme in the postwar period;
(3) To reorganize schools out of respect for individual schools' autonomy, such as the advancement of decentralization of educational authority and realization of independent school management;
(4) To promote university reform and research activities, such as the enhancement of their international currency, in order to keep international competitiveness and to create a truly vital society.

The new curricula under the new Courses of Study were revised and reissued in December 1998, and are to go into effect in April 2002 for elementary and lower secondary schools, and in April 2003 for upper secondary schools. At the same time, a five-day week system will be introduced in all schools. Presently, there is no school on the second and fourth Saturdays of the month. As a result of reduction in schooldays, content of curricula is also to be reduced. The content for all subjects will be reduced by about 30 %, and this material will be carried forward to the higher schools' curricula which means the content of compulsory education will reduce even more. In science classes, laboratory experiments tend to be the major victim of reduction in class time and content.

Chapter 5. Activities of Japan Society of Applied Physics for Science Education

The following is a short summary of basic information about the Japan Society of Applied Physics (JSAP).

The Japan Society of Applied Physics originated from a voluntary forum of researchers belonging to the University of Tokyo and the Institute of Physical and Chemical Research, who were interested in discussing how to apply scientific and technological theories to the actual world. The subjects discussed covered a very wide range of scientific fields, such as

Physics, Electronics, Mechanics, Metallurgy, Chemistry, and various interdisciplinary areas. These discussions resulted in the publication of the monthly journal "OYO BUTURI" in 1932. "OYO BUTURI," which means Applied Physics in Japanese, was the first technical journal in the world using the title Applied Physics, reflecting the founders' recognition of the importance of the interaction between Physics and Engineering. "OYO BUTURI" continued to be published as a valuable information source for many researchers even in the difficult period during and immediately following World War II.

JSAP was established as an official academic society in 1946, and since then, it has been a leading academic society in Japan. The society's interests cover a broad variety of scientific and technological fields, and JSAP continues to explore state-of-the-art and interdisciplinary topics.

Membership

JSAP has more than 23,000 members, 60% of them from private industry, and members' scientific and technological backgrounds and interests also cover a wide range.

Chapters

JSAP has seven regional chapters (Hokkaido, Tohoku, Tokai, Hokuriku-Shinetsu, Kansai, Chugoku-Shikoku and Kyushu) which promote regional activities. The JSAP annual autumn technical meeting is held at a regional center in rotation and the spring meeting is always held in the Tokyo area.

Divisions

JSAP has divisions covering specialized fields. Each division sponsors its own activities, including seminars, tutorial meetings, and publication of newsletters. The current divisions are: Education in Applied Physics, Optics, Radiation Science, Solid State Physics and Applications, Thin Film and Surface Physics, Materials Science and Crystal Technology, Organic Molecular Electronics and Bio-electronics, Superconductors, Plasma Electronics and Silicon Technology.

Professional Groups

Professional activity groups are organized as part of JSAP. These groups hold topical meetings to stimulate the exchange of knowledge and achievement in particular fields. Currently active groups are: Quantum Electronics, Light Wave Sensing Technology, Ternary and Multinary Compounds, New Display System, and Silicon Carbide and Related Wide Band Gap Semiconductors.

Educational Activities

JSAP holds a regional workshop "KAGAKU TO SEIKATSU NO FESTIVAL," which means "Festival of Science in Our Daily Life," to familiarize boys and girls with the joys of applied physics. This event is held once a year at various cities in rotation by a combination of divisions and regional chapters. Another annual regional workshop, "RIFURESHU RIKA KYOUSITU" - "Refreshing Science in the Classroom," introduces elementary and secondary school teachers to hands-on experiments in physics using materials from daily-life and also to familiarize school students with the fun of science. In 2000, 10 workshops were held throughout Japan.

Technical Meetings

JSAP holds annual nationwide spring and autumn technical meetings. Between 6000 - 9000 participants, and more than 4000 papers are presented and discussed at each meeting. JSAP also holds meetings called "JSAP SCHOOL" to inform young researchers of current topics.

Publications

JSAP publishes the monthly journal OYO BUTURI, a Japanese-language membership journal containing review articles. In cooperation with the Physical Society of Japan, JSAP also publishes the English-language JAPANESE JOURNAL OF APPLIED PHYSICS (JJAP).

Other Activities

JSAP has 7 Chapters, 9 Divisions, and 7 Professional Groups. These organization have their own activities, such as technical meetings or technical visits. JSAP is active in international cooperation with other academic societies, and has close cooperation with six academic societies outside Japan. For more detailed information, please click respective items on the Home Page (URL : http://www.jsap.or.jp/).

Chapter 7. Conclusion

Japanese students achieve excellent results in written science tests, like TIMSS for example, but they do not necessarily like science. Furthermore, they do not want to choose science related occupations. They are learning science in school only as a means to proceed to the next stage of education.

It is well known from statistics that most elementary school pupils in Japan like science as a subject. At higher grades lower secondary school students tend to dislike science as a subject, though they like science itself. Many upper secondary school students dislike science especially physics. This is a common phenomenon in science education in Japan as a whole. This serious phenomenon is caused by a shortage of laboratory experiments in science classes, especially in physics classes. In high school physics, there is a lot of mathematics to be learnt to solve problems. Imagine a physics class without experiments. It must be a boring class.

That is why JSAP holds educational activities like "Festival of Science in Our Daily Life," and "Workshop for Refreshing Science in the Classroom". More and more experiments should be introduced in science class.

References

(1) "Course of Study" (Ministry of Education, Science, Sports and Culture, 1989 revised version and 1999 revised version) (in Japanese).

(2) "Educational White Paper" (Ministry of Education, Science, Sports and Culture, 2000) (in Japanese).

(3) "Education in Japan 2000 - A Graphical Presentation -" (Ministry of Education, Science, Sports and Culture, 2000).

(4) "Japanese Government Policies in Education, Science, Sports and Culture 1999 - Educational Reform in Progress -" (Ministry of Education, Science, Sports and Culture, 2000).

(5) "Statistical Abstract of Education, Science, Sports and Culture 2000 edition" (Ministry of Education, Science, Sports and Culture, 2000).

(6) "JSAP International" (Japan Society of Applied Physics, No.1 and No.2, 2000, and No.3, 2001).

Footnotes:

1) Ministry of Education, Science, Sports and Culture was renamed Ministry of Education, Culture, Sports, Science and Technology in 2001.

2) The author is now the chief of the division of Education in Applied Physics.

THE HST PROGRAMME AT CERN

The CERN Programme for Physics High School Teachers (HST) has been held for three years. The goals of the High School teachers' programme are:

- Promote the teaching of physics, and in particular of particel Physics in High Schools
- Promote the exchange of knowledge and experience among teachers of different nationalities
- Expose teachers to the world of research
- Stimulate activities related to the popularization of Physics within and beyond the classroom
- Help CERN establish closer links with European Schools

- Encourage the cooperation between CERN and existing programs sponsored by the European Union in the area of scientific education.

All high school teachers from the CERN member states can apply to participate in the programme. Only the following conditions are required:

- Have a good working knowledge of the English language
- Some basic computing skill (use of mail and the Web)
- Be committed to attend in full the three weeks of the programme.

However, those who have a proven experience of extra-curricular activities such as partipation in EU-sponsored programmes (Comenius, etc.), organization of educational activities (Physics Olimpiades, Summer courses for students), contribution to the planning of national curricula, etc. have preference.

The HST programme

The HST programme has been a magnificent opportunity to visit the largest High Energy Physics Laboratory in the world. The laboratory is supported by 20 European states, but other countries such as USA, Japan, Russian, China and Canada collaborate in the LHC (Large Hadron Collider) Project, which implies the building of a new accelerator in the same tunnel where the LEP (Large Electron Positron collider) is. This facility will permit the study of the structure of matter at energies never achieved in any other laboratory in the world. In this way, scientists try to answer some of the open questions in this fundamental field of Physics: Why are there four interactions in nature and why are they so different?; why do some of the particles acquire mass and others don't?; do supersymmetrical particles predicted by unification theories exist?; What is the origin of the antisymmetry in the Universe?

It is said that with this new Project which will be put into operation in 2005, CERN has turned from a European to a World laboratory.

The organisation of the course

The organisation of the course was directed by Michelangelo Mangano of the Theoretical Physics Division of CERN. The participants attended lectures given by well-known physicists in the morning and in the afternoon they participated in specific sessions for teachers: visits to some laboratories such as Cryolab, Antimatter, etc; detectors such as Delphy or discussion sessions about topics related to High Energy Physics in High Schools. We also visited the Microcosm Exhibition in which the fundamentals of Particle Physics, the experimental techniques used in research and the knowledge adquired by using them, are exposed at High School level. Every year, thousands of students coming from all the countries of Europe pay a visit to the Microcosm Exhibition.

Repercusion of the course in the teaching

The first week was dedicated to the study of fundamental concepts in Particle Physics, specially in the morning. In the afternoon there were specific sessions for Teachers given by some of the participants in the Programme or by people of CERN.

In the second week, the lectures given by experimental physicists in the morning were about classic Experiments in Particle Physics. However, in the afternoons, teachers divided in workshops, began to prepare didactic materials according to the preferences of each one. The topics of the workshops were: edition of webpages, classroom activities, didactic research projects, etc.

Lastly, during the third week we had some lectures in the morning, related to the current theories in Particle Physics but we dedicated most of the time to workshops so that we could finish our work before of the end of the course. In fact the webpage of CERN has incorporated in the site *http://teachers.cern.ch* most of the work done by the participants of the course for use of teachers and students of all over the world.

Highlights of the way of working at Cern

Although I already knew the way of the research methods at CERN, specially in the aspects of discussions, cooperation among scientists from various countries, etc. it exceeded my expectations.

In each building there were a lot of meeting rooms and in each corner, computers; all with the purpose of facilitating the communication and discussion among researchers.

In addition, the life together among scientists of different nationalities, between teachers and students (nearly 200 students of Physics did a simultaneous course with teachers, although more widespread) was encouraging and enriching. It was possible, for example, to meet in the restaurant, bringing his foodtray or in acorridor among the offices, a Nobel Prize in Physics, known for his discoveries in Particle Physics. In fact, I met Jack Steinberger in a restaurant and Georges Charpak coming from his office, both respectively known for the discovery of a new type of neutrinos and the multiwires chamber. The applications of the multiwires chamber to technology are well known.

The get together in the evening, on the terrace of the cafeteria, with a glass of biere, the trips to the Jura and Alps Mountains and the visits to Geneva and Lausanne, helped to make the stay at CERN something unforgettable.

A possible return to CERN

I think that to visit and work at CERN always makes its mark in the professional life. This is a feeling shared by every one of the participants in the course. There were High School Physics teachers from 18 European countries and the USA and all of us agreed that this was an unforgettable experience from the professional and human point of view. All of us would like very much to return to CERN. I encourage my colleagues to seize the opportunity of visiting and working at CERN. It is certainly worthwile.

José María Cordobés, IES "Alexandre Bóveda".VIGO (Spain)

The ComLab-SciTech project

A regular theme at GIREP conferences focuses on the use of information and communications technology in physics education. GIREP conferences provide a convenient forum where those working in this field can be identified and initial contacts made. This, in combination with the GIREP homepage and newsletter, can be of considerable help in finding partners for European projects.

One such example is the ComLab-SciTech project which has recently been approved under the EU Leonardo da Vinci Community Vocational Training Action Programme. The project involves partners from Bulgaria, Czech Republic, Spain, Greece, Ireland, Lithuania, Portugal, Slovak Republic and Slovenia, many of whom are GIREP members.
The ComLab-SciTech project aims to integrate 'virtual' and 'true' laboratory environments. For this purpose, novel state-of-the-art hardware and software tools will be developed and a range of multimedia courses will be designed and evaluated. On the hardware side, a multipurpose data acquisition and control system will be designed, evolving from the very successful Prolab system developed at the Faculty of Education of the University of Ljubljana. A low cost version will enable its use in distance learning situations. In parallel with this, a range of multimedia courses aimed at different target groups, including school pupils, university students and teachers of science and technology. The multimedia packages will utilise simulations, video clips and interactive html packages.

The project is financed by a €500,000 grant from the Leonardo programme. The project website may be visited at http://www.pef.uni-lj.si/slavkok/davinci/.

Slavko Kocijančič
University of Ljubljana, Faculty of Education

The GIREP conference 2002

The Physics Department of Lund University in Sweden will host GIREP conference in year 2002. Lund is a typical university town in the south of Sweden, where one third of the population is students. The university was founded in 1666, and is now the largest university in Sweden.

The conference in Lund will be held in August 4th-9th of 2002.

Already at the Barcelona conference we presented a program declaration for the Lund conference. For those of you who did not have the opportunity to participate, we give the title and declaration below.

Physics in new fields and modern applications -*Opportunities for physics education*

Traditional physics is no longer attracting the number of students it used to do, but at the same time physics is applied successfully in new exciting fields.

To attract the younger generation we believe that we have to allow for new approaches early on in physics education.

We hope that during the GIREP conference in Lund we will together find useful concepts.

We are looking forward to contributions from a number of fields for example:

Biophysics, Space physics, Physics and music, Environmental physics, Physics and sports, Physics of peace keeping, Medical physics, Econophysics,.....

Our dream is that this kind of conference will in due time reform the physics curriculum.

During the process we should keep in mind that our most important task is marketing physics for a new generation and new target groups.

Olof Zetterberg

To our members!

At the General Assembly, it was decided that our Newsletter should be sent to the members per e-mail and/or published on our homepage. We already have e-mail addresses from 169 members, yet we have to check them.

Please fill in the members' form and check your e-mail addresses on our homepage

http://www.pef.uni-lj.si/girep (try also: **http://www.girep.org)**

User name: girep, password: duis98

Otherwise, send us an e-mail so that we will be able to check your address. All members who do not want to read or cannot read the Newsletter on our homepage please inform us so that we can send you the next Newsletter by ordinary post.

We urgently ask our members to prefer e-mail newsletter. This saves time for the committee and money for GIREP!

Look at our home page! There you will find all GIREP Newsletters from the beginning!

Our treasurer C. Ucke has scanned all the former editions and transformed into pdf-files. The first editions were generally printed in a relatively bad quality. That is why the scanned versions have also not a good quality.

Proceedings from the conference in Barcelona will be published in a printed form and as a CD-ROM. All GIREP members who did not attend the conference should please write explicitly to the treasurer which version (printed or CD-ROM) they want to have. GIREP can afford only to send one version. If there is no reaction we will send the CD-ROM version!

Please send contributions for next GIREP Newsletter till September 2001!

GIREP COMMITTEE

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FEES
The current fee is EURO 20 for one year.
The accounting year runs from January 1 to December 31. Fees paid after September in any year will be credited on the following year, unless the applicant specifies otherwise.
The preferred method to pay is by credit card (VISA or EURO-/MASTERCARD; no others). **Add 5% expenses to the fee; this means then totally 21 Euro for one year!.**
Please write or fax **(no e-mail!)** to the Treasurer your full card number, expiration date and the total amount. The Treasurer will convert that amount into DEM and then charge your credit card account in DEM.
The fee can be paid also into the following account:
Christian Ucke, Postbank (GIRO) Muenchen, 80317 Muenchen, Account No. 355 28-808, BLZ 700 100 80.
BLZ (= BankLeitZahl) means a special sort of code for the Postbank in Germany.
At the same time, please send a note (by letter, fax or e-mail) to the Treasurer, confirming how much money you sent and when and for what years.
The members should pay all bank charges and mailing costs. Please ask your bank for these costs before transferring money!
In some countries, it is possible to transfer money from the national Postbank with EUROGIRO free of charge (Belgium, Germany, Japan, Luxembourg, Switzerland, Spain) or with a small charge (Denmark, Finland, France, Great Britain, Netherlands, Austria, Sweden).
If you send a EUROCHEQUE filled out in DEM, there are no expenses at all for the Treasurer. If you send a cheque filled in your local currency, there are DEM 20 (Euro 10) expenses for the Treasurer. **Please add these expenses to your fee!**
If you prefer to reduce bank or cheque expenses, you may pay several years fees in advance.
In cases of real difficulty to arrange payment, please contact the Secretary or the Treasurer who are ready to advise whether special arrangements can be made.
General Assembly of GIREP members in Udine (August 1995) accepted the following supplementary new article for the GIREP statutes:
Each year in October, those members who have not paid for the previous two years will be removed from the membership list.

Look at our home page http://www.pef.uni-lj.si/girep and fill in the members' form!
User name: girep, password: duis98