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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Revitalize Your Introductory Courses with Modern Topics such as SETI

Modern Physics

American Association of Physics Teachers president Ruth Howes stated in a recent editorial:

> "We [physics teachers] have assumed that ordinary folk like chemists and biologists, to say nothing of lawyers and journalists, should learn only the well-established basics. We have kept the exciting stuff to ourselves and our chosen followers. …Our courses almost never discuss anything newer than the development of quantum mechanics and relativity in the first decades of the last century." (Howes 2000)

It is paradoxical that introductory physics courses, the only physics that most of our students will ever learn, fail to present the current scientific view of the physical universe. Students learn, instead, how to solve problems using methods of Newtonian physics, and if the course is a good one they learn the great principles of 17th, 18th, and 19th-century physics. But classical physics, which applies to only a relatively small fraction of physical reality, and then only approximately, is seriously and fundamentally flawed both quantitatively and qualitatively.

Furthermore, contemporary physics is the more popular thing to teach! For example: What kinds of physics books do non-scientists pick up voluntarily? Recently, many have picked up Brian Greene's *The Elegant Universe*, a sophisticated presentation of general relativity, quantum field theory, and string theory, without algebra and without oversimplification, in language that non-scientists can grasp. People are fascinated by physics, but they want, and deserve, to learn *today's* physics. It is surprising that, at a time of declining enrollments, we throw away our most exciting resource, namely modern physics.

We can take a tip from astronomy, a field that is popular both in the classroom and in the bookstores. Unlike most physics courses, most introductory astronomy courses are contemporary and conceptual (non-algebraic). One fascinating and physics-packed modern topic that is usually included in astronomy courses but unfortunately ignored by physics courses, is SETI: the search for extraterrestrial intelligence.

SETI

I will outline the two SETI lectures in my one-semester physics course for non-scientists (for further details see Hobson 1999). Their purpose is to present SETI, to apply

the principles of energy, thermodynamics, electrodynamics, and special relativity (these have already been presented by this point in the course), to illustrate scientific methodology, and to consider a social implication known as "Fermi's question."

Because of all the pseudoscientific nonsense surrounding extraterrestrial life, we begin by separating science from pseudoscience. I present an article from a popular tabloid newspaper that is strong on astonishing claims but weak on evidence and scientific principles. During class discussion, it becomes clear that little or no real evidence is offered for such claims as alien visitations, miraculous predictions, communications with the dead, etc.

"Pseudoscience" can be defined as the dogmatic belief in an appealing idea that purports to be scientific but that is not supported by scientific methods. Such beliefs generally lack objective evidence, and may contradict widely-accepted scientific principles such as the laws of thermodynamics. I list some examples: parapsychology, levitation, alien invasions, dianetics, astrology, creationism (a real threat in the United States)--the list goes on and on.

A poll of the class usually reveals that most students believe there is life beyond Earth. Upon inquiring into their *reasons* for this belief, many students reply that "Earth is surely not unique in this respect." This leads into a discussion of the "Copernican Principle," the notion that "there are no special places." After all, physics seems to be the same everywhere. So why, indeed, should Earth be unique?

Most of our class time is occupied with the standard analysis carried out by such SETI pioneers as Frank Drake and Carl Sagan, an analysis that follows naturally from the Copernican Principle. We divide the SETI question into four parts: (1) What is the expected number of Earth-like planets? (2) For Earth-like (capable of supporting life) planets, what is the likelihood of life arising? (3) If life arises, what is the likelihood that it will develop intelligence? (4) If intelligent life arises, then what is the likelihood that it will develop technology (radio transmitters, for example)? We need to add question (4) if we want our SETI quest to have observable content, because intelligent life will probably be undetectable by us unless it can communicate across space, for instance via radio technology.

Question (1) leads to lots of contemporary astronomy and physics. This is the great age of planetary discovery! We should bring this adventure into our classrooms. Not only the discoveries themselves, but also the physics-based methods of observation, are fascinating. Other topics include star and planet formation, the formation of our solar system, the types of stars that could have Earth-like planets, the possibility of past or even present life on Mars, the extent of our galaxy, the extent of the known universe.

Question (2) has been the subject of many biochemical investigations, leading to the hypothesis of a chemical origin of life on Earth. The 1953 Miller-Urey experiment, showing that amino acids and nucleic acids form spontaneously under a variety of conditions thought to simulate early Earth conditions, is worth describing.

When we come to questions (3) and (4), observations and experiments are sparse. These questions can stimulate worthwhile speculation, but conclusions must be very tentative.

With each of the four questions, I include a plausible numerical estimate, while always reminding the class that such estimates are highly speculative. To focus the discussion, we restrict it to our Milky Way galaxy, with the remark that there are at least billions of galaxies in our universe. Most scientists who have spent much time considering SETI believe there may be a billion or more Earth-like planets in our galaxy. Furthermore, the ease with which biological precursor molecules form, and the plausible mechanisms for further "chemical evolution," lead most scientists to conclude that on a significant fraction (such as 10%) of these Earth-like planets, life arose.

Thus, it is quite plausible that life arose in millions or billions of places, in our galaxy alone! Although speculative, this is a highly significant hypothesis. It implies that life, while existing around only a small fraction of stars, is nevertheless abundant throughout the universe! Life is a characteristic feature of the cosmos.

Our speculation has led us to two plausible hypotheses, namely that Earth-like planets and life are abundant, and to a framework for asking such questions. Beyond this, the uncertainties make speculation difficult. Such uncertainty is expected whenever we explore new territory. Despite the uncertainties, some scientists have always been willing to carry the speculation further. One of these was Enrico Fermi.

Fermi's Question: Where Is Everybody?

Fermi was conversing with physicists Edward Teller, Herbert York, and others over lunch one day at Los Alamos in 1950. The talk turned to possible modes of interstellar travel. All agreed that Earth had not been visited by alien spacecraft. Then Fermi asked "Don't you ever wonder where everybody is?" He followed this up with a series of calculations, similar to the four steps outlined above, leading to the conclusion that we should have been visited long ago and many times over. He further concluded that the reason we have not been visited might be that interstellar travel was impossible, or that it is always judged not to be worth the effort, or that technological civilization doesn't last long enough for it to happen. (Kuiper and Brin 1989).

Fermi's reasons for the absence of visitations are worth discussing. Teller, Freeman Dyson, and others have outlined several modes of interstellar travel that seem feasible for a civilization that has possessed technology for at least many centuries (Hobson 1999). Perhaps unknown dangers prevent this (Fermi's first suggestion), or perhaps advanced civilizations judge the effort as not worthwhile (Fermi's second suggestion).

Fermi's third suggestion is sometimes called the "short lifetime hypothesis." Do civilizations survive their own technology? Our only example is us. Humans (bipedal hominids) have been here for 5 million years, and became technological (with radio) a mere century ago. Will we survive, as a technological society capable building devices such as radios?

The evidence is not encouraging: Organized killing between members of our own species continues all over the world. Already 6 billion strong and a strain on Earth's resources, we continue growing exponentially. Other known problems that could destroy the hope of a prosperous future society include poverty, illiteracy, superstition, deforestation, animal and plant extinctions, global warming, resource exhaustion, new epidemics, and many more. The unknown problems are anybody's guess. Whether one agrees with Fermi or not, the great physicist's third suggestion is a sobering perspective on the sustainability of our own civilization.

All in all, SETI is an intellectual feast that we should be eager to share with our students.

References and notes

Hobson, A. (1999). *Physics: Concepts and Connections* (Prentice Hall Publishing Company, New York, 2nd Edition 1999), an introductory physics textbook for non-scientists.

Howes, R. (2000). "Modern Physics--Guest Editorial" *The Physics Teacher* **38**, 73.

Kuiper, T. and Brin, G., editors, (1989). *Extraterrestrial Civilization* (American Association of Physics Teachers, College Park MC), pp. 67-68.

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Report of the Conference in Barcelona

During the week 28 August -1 September 2000, in Barcelona the XVIII GIREP Conference was held, jointly with the Euroconference Physics Teachers Training in an Information Society. The Conference was supported by the European Commission, the International Commission on Physics Education ICPE, the GIREP Organisation, the Spanish educational authorities, the Catalan Educational authorities, the Universitat Autònoma de Barcelona, the Department of Didactica de la Matemàtica i les Ciencies experimentals and the Department of Physics. The main topic of the Conference was Physics Teacher Education, so its acronym was PHYTEB (Physics Teacher Education Beyond 2000)

The logo of the Conference of PHYTEB (Physics Teacher Education Beyond 2000) is constructed. The upper part corresponds to a Spiral/Turbulence/Chaos image, which represents an image belonging to the world of physics in such a way that it turns out to be pleasant for any citizen. That is the way we would like every citizen to look at physics. On the other hand, to think of turbulence and chaos in physics education and teachers education means to bear in mind their characteristic attributes: complexity. The down part of the logo, the one that indicates the conference topic, has a compositional structure that allows readings of many aspects: Physics Education beyond 2000 or Physics Teacher beyond 2000. Then the logo tried to express many of the organizers intentions.

The Conference has made possible to dialogue and exchange ideas for people interested in similar professional fields. The possibility to know about other solutions to the same problems or different points of view on the same subject is considered a way to progress in the everyday tasks of Physics Education.

The conference has followed what could be recognised as the spirit of GIREP. Since the contributions to a conference are already a stimulus to improve the professional practise of a teacher, each and every person that wanted to bring a contribution to the GIREP Conference had the opportunity to do so.

The structure of the Conference

Three topics have centred the activities:

1. **Physics beyond 2000**: Which are the Contents of Physics to be taught? Do we have to change its approach? Do we have to change the contents themselves to adapt them to the present-day technologies? Do we have to change the contents to adapt them to more up-to-date physics?
2. **Physics Education beyond 2000**: How to teach rightly and efficiently? How to deal with the next century studenys?
3. **Physics Teacher education beyond 2000**: How to prepare Physics Teachers so they will be able to face challenges involved in teaching physics to students with a range of abilities wider then ever before?

In the Conference there were different types of presentation. We had the opportunity:

- to learn about and release very accurate research results on Physics Education / Didactics.
- to learn about and release some implementations / some successful class sessions because of their conceptual point of view, their working methods, the materials used, and so on. All of them might provide suggestions interesting to be applied.

- to follow the results of reflections, proposals based in the history of science, philosophy, psychology, sociology and many kinds of knowledge fields.

During the Conference 318 contributions have been presented on the part of the 420 participants which came from 52 countries all over the world. (Transparència distribucio de participants).

Throughout the mornings, 8 plenary lectures and 3 central round tables took place on the part of the experts in Physics Education Research. A particular round table open to all the citizen has been held in the Science Museum opened to the PHYTEB participants during all the Conference days.

Mornings were also devoted to computer sessions (19 computer displays), exhibitions (2), workshops (4) with the participant's implication in several activities, discussions, etc. and poster sessions (72 posters). A general good acceptation has conceded to each of these activities.

In the afternoons the parallel sessions and symposia took place: 6 symposia, 155 long contributions and 38 short talks. In each parallel session 4 contributions gathered in accordance with the affinity of the suggested subject were presented.

All the contributions will be published in CD-ROM and some of them, the ones accepted by the team referee researchers, will also be published in paper version in the Elsevier editions.

More information is available in: http://www.blues.uab.es/phyteb

Organizers: Roser Pintó — Sciences Education Department
Santiago Suriñach — Physics Department
University Autonoma de Barcelona (Spain)

Report of the General Assembly in Barcelona on August 28, 2000

1. Reports of the Committee: The activities were mainly focused on giving advice to carry out the present conference in Barcelona and in setting the stage for the next conference in the year 2002.
2. Karl Luchner was elected honorary member of GIREP. According to the Article 5 of the Statute, he will have all member's privileges and no duties.
3. The next regular biannual conference will be held in Lund, in the southern part of Sweden from August 5-10, 2002. It will be organized by Per Olof Zetterberg and his team. The suggested title is: "Physics in New Fields and Modern Applications - Opportunities for Physics Education". As a new feature, an intermediate smaller topical conference is planned for 2001 in Udine, which complements the big biannual conferences. It is dedicated to topics for teacher training and will focus on the "Building of formal Thinking". The organisation is in the hands of Marisa Michelini. The date has yet to be adjusted so that it can be a companion meeting to next year's ESERA conference.
4. Since the last meeting in 1998, 4 Newsletters have been published. There is still a considerable lack of contributions to the GIREP Newsletter. GIREP members are urged to send in contributions which are of general interest, like conference announcements, reports on national or international projects, reports on the situation of

physics education in different countries or short communications on topical subjects, like, e.g., teaching ideas, new experiments and the like. It is planned, that forthcoming issues of the GIREP Newsletter will be made available electronically. They can be downloaded from the server. The announcement of a new issue will be sent by e-mail message. Only in special cases the Newsletter will be sent by regular mail. It is planned to put former issues of the GIREP Newsletters as downloadable files (.pdf-format) on the server.

5. As a result of the discussion about the general policy and the profile of GIREP it was generally agreed that more activity should be devoted to organising thematic networks and discussion groups.
6. It was not possible to prepare a new committee, and the decision was postponed to the next conference.

Manfred Euler

Notes from the treasurer

The balances for the years 1998 and 1999 were approved by the auditors S. Pugliese-Jona and B. Laiz Castro and presented at the General Assembly in Barcelona on 28. August 2000..

The General Assembly decided to increase the annual fee to 20 EUROS.

This allows probably also in future to support our biannual conferences with about 4000 Euros and to finance our newsletter and the service for our homepage with about 1000 Euros per year. But there is not enough money to support more acitivities.

GIREP Balance, Jan. 1998 to Dec. 1998

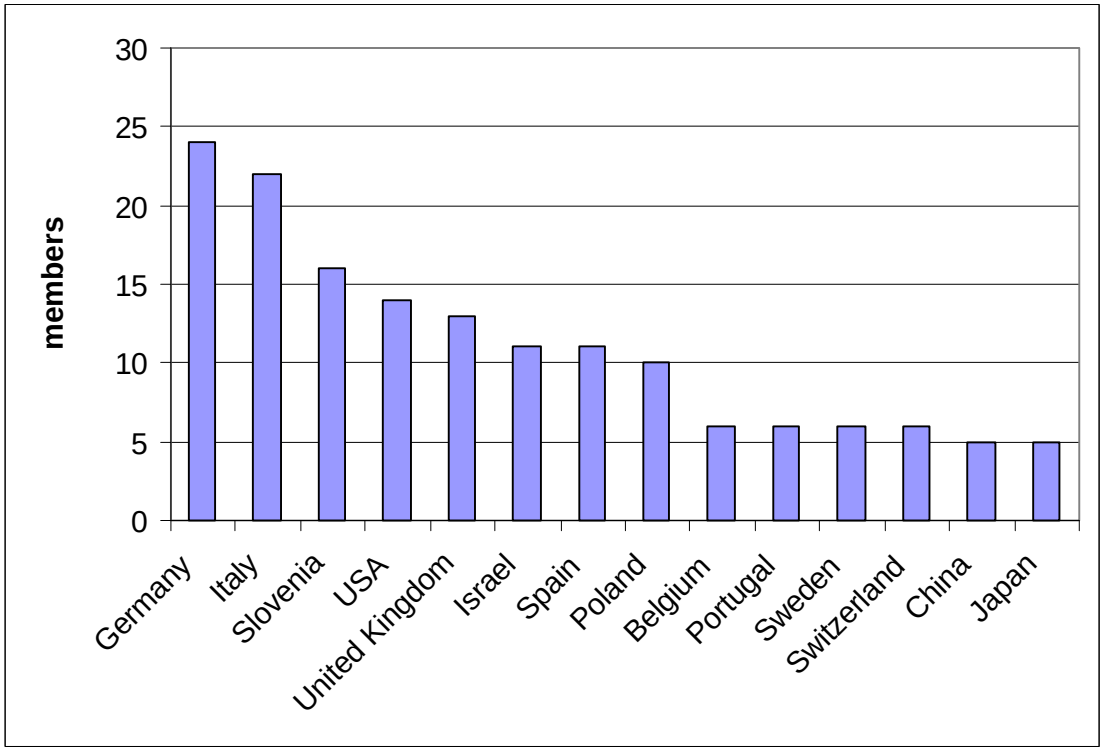
Postbank Munich (DEM)	CREDIT	DEBIT
carried forward from previous balance	8934.48	
support for Duisburg conference		7000.00
support for newsletter and GIREP server		1300.00
expenses for account & mailing		66.00
fees	6626.12	
totals	15560.60	8366.00
carried forward		**7194.60**

GIREP Balance, Jan. 1999 to Dec. 1999

Postbank Munich (DEM)	CREDIT	DEBIT
carried forward from previous balance	7194.60	
support for Barcelona conference		3920.54
proceedings/CD-ROM's (Duisburg)		431.40
expenses for account & mailing		82.00
fees	4144.33	
totals	11338.93	4433.94
carried forward		**6904.97**

Distribution of the GIREP members

October 2000



GIREP has actually 205 members (from 42 countries)

According to our statutes are all persons members who have paid their fee until 1998 and later. 14 members have paid until 1998, 28 until 1999. 156 have paid for 2000 or more. 7 honorary members do not pay fees.

In the diagram are represented 154 persons.
The other 51 members are from 28 different countries:
Austria, Belarus, Belgium, Chile, Colombia, Cyprus, Czech Republik, Denmark, Finland, France, Greece, Honduras, Hungary, India, Ireland, Japan, Korea, Latvia, Malta, Mexico, Netherlands, New Zealand, Norway, Philippines, Rep. Makedonia, Romania, Russia, South Africa

From 169 of our members we have an email address.

Christian Ucke

THEMATIC DISCUSSION GROUPS

The aims of the proposed GIREP Thematic Discussion Groups are:
- to promote and maintain a net of connections between persons who work in specific fields,
- to promote the collaboration between members and the exchange of experiences and of results of research in physics education.
- to prepare activities for conferences and seminars,
- to produce resource papers on specific issues.

At the moment the following discussion groups have been agreed upon:
A _ Interdisciplinarity (coordinated by Josephina Turlo, Poland)
B_ The role of language in physics textbooks (and not only) (coordinated by Zofia Golab-Meyer, Poland)
C_ Early start for physics understanding: why, when and how (coordinated by Paolo Guidoni, Italy)
D_ New Technology and computers in physics learning (coordinated by Laurence T Rogers, UK)
E_ Science Teachers As Researchers in Schools STARIS network (coordinated by Brian Woolnough, UK)

A "GIREP_Thematic Groups" Forum is active on the web at the address www.fisica.uniud.it. The discussions are open to all GIREP members who can send their contributions to the Forum by connecting to the website and clicking on the word "Discussion". As a start, here are the presentations of some of the discussion groups, prepared by the coordinators:

THE ROLE OF LANGUAGE IN PHYSICS TEXTBOOKS

(Zofia Golab Mayer, Jagellonian University, Krakow, Poland)
Suggested topics of discussion
- Everyday language versus scientific language
- Precision of formulations
- Introducing new concepts in context
- Use of non defined notions
- Logical structures of phrases in textbooks
- Mathematics as a language of physics
- How to introduce vectors
- Language of popular writings

EARLY START FOR PHYSICS UNDERSTANDING: WHY, WHEN AND HOW

(Paolo Guidoni, Dipartimento di Scienze Fisiche, Università Federico II - Napoli, Italy, p.guidoni@quipo.it; guidoni@na.infn.it)
Call & proposal for a GIREP web discussion:

Physics' teaching-learning (as Mathematics', and Sciences') suffers nowadays by severe, worldwide disease(s). Across the variety of boundary conditions, common aspects of the disease do emerge: roughly, a diffused cognitive and motivational failure. Quite often, "they" do not understand as "they" refuse to understand - and viceversa.

Size and depth of the problem refute surface tricks - some curricular reshaping, some technological support. We have to understand first why and how our global approach to

cultural transmission in scientific areas is not at all resonating with the obvious individual and social needs in this direction; then we have to fix, and to re-articulate, the approach itself.

To this purpose, some ingredients appear to be crucial (and missing): efficient models of understanding dynamics (as different from pure instructing & conditioning); efficient presentation/articulation of disciplinary structures/abilities; efficient interplay with formal thinking; efficient interplay with natural thinking (natural experience, natural language...); and so on. In these terms, in fact, it is by now well experienced that understanding and motivation can be developed at high levels by a gradual, coherent, diffused "early start" (even at kindergarten level); and that, in many respects and situations, at 14-16 it is dramatically "too late".

To set up this web interaction I therefore propose: i) to shape "early start" discussions on the background of the mentioned global problems; ii) to articulate, as a first approximation, forthcoming contributions according to categories (to be precised during the work) such as "comprehensive manifesto", "experience patterns", "proposals patterns", "problem patterns" ... and so on.

I am presently working at an "opening" intervention of about 3-4 pages along the abovementioned lines.

SCIENCE TEACHERS AS RESEARCHERS IN SCHOOLS - STARIS NETWORK

(Brian Woolnough, Oxfort University Department of Educational Studies, Oxford, UK, brian.woolnough@edstud.ox.ac.uk)

Some of us are involved with doing research with teachers in schools, helping them to investigate their own teaching and the learning of their students. If those so involved would like to get in touch and form an informal network, they should make contact with Brian Woolnough who will initially co-ordinate such a group. It is envisaged that such a group would include not just physics teachers (GIREP) but teachers of other sciences (ESERA) too.

Marisa Michelini

FIRST GIREP SEMINAR on Development of Formal Thinking in Physics, Udine, Italy, 01-05 September 2001.

Organized by Ian Lawrence and Marisa Michelini, Vicepresidents of Girep.

Developing Formal Thinking in Physics means acquiring a network of connections assigning meaning to imagined elements and allowing navigation around the landscape of physics.

Themes

1)- Interplay of theory and experiment. Idealisation issues in embedding and linking practical experiences with developing structures.

2)- Modelling the world. Issues in developing imagined worlds and connecting them to the phenomenal world.

3)-Mathematics. Exploring the special case of developing physics through the descriptive language of mathematics.

4)- Images and not formal thinking in developing physics concepts.

Outputs:

(i) Overview of evidence based insights for action to advance the state of play in this area and implications for teacher education,
(ii) papers supporting this task,
(iii) indications on what kind of journal-based literature is most useful to teachers and why.

Organisation:
1 day will be devoted to each of the following age ranges: 5-11, 11-16, 16-19, university. Each day:
- a plenary lecture will provide information on the state of the art and on questions for investigation;
- parallel sessions will be devoted to suggestions and reports of work in progress;
- working groups will review papers.

The number of participants will be limited in order to allow in depth discussion. In preparation of the Seminar groups of teachers will be asked, in different countries, to examine past GIREP Proceedings and give useful indications for the discussion.

The GIREP conference 2002

The Barcelona conference 2000 has just finished and hopefully everybody is looking forward to the next conference. The Physics Department of Lund University in Sweden will host this, 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

New Conference Proceedings Published:

TURNING THE CHALLENGE INTO OPPORTUNITIES:
the Historic Mission of Physics Teacher for the Next Millennium
Proceedings of '99 International Conference of Physics Teachers & Educators
Edited by LUO Xingkai & ZHAO Kaihua
Published by Guangxi Normal University Press

Approaches physics education from the perspectives of PER, collaboration among physics educators and school teachers, development of innovative curriculum materials including low-cost but high-wisdom hands-on experiments and IT applications. Records the academic accomplishment of the largest international physics education meeting ever held in the People's Republic of China.
For content and other details please check: http://www.ipe.gxnu.edu.cn

Available from:
Institute of Physics Education, Guangxi Normal University, Guilin, China
E-mail: ipe@public.glptt.gx.cn URL: http://www.ipe.gxnu.edu.cn
Fax: ++86-773-5818071

To our members!

At the General Assembly, it was decided that our Newsletter should be sent to the members per e-mail. 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 home page

http://www.pef.uni-lj.si/girep

try also: **http://www.girep.org**

Please ask the secretary or the treasurer for the user name and the password

Otherwise, send us an e-mail so that we will be able to check your address.

All members who do not want to get Newsletter per e-mail 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!

Please send contributions for next GIREP Newsletter till February 2001!

Christian Ucke looks for originals of the first seven GIREP Newsletters (No 1 to 7) to scan them. Please send him a mail if you have original Newsletters.

GIREP COMMITTEE

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FEES

The accounting year runs from January 1 to January 1. Fees paid after September in any year will be credited on the following year, unless the applicant specifies otherwise.
The current fee (2000) is EURO 20 preferably paid into the following account:
Christian Ucke, Postbank (GIRO) Muenchen, Account No. 355 28-808, BLZ 700 100 80.
BLZ (= BankLeitZahl) means a special sort of code for the Postbank in Germany.
Please do not pay into other accounts.
The members should pay their own bank charges and mailing costs. 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.
In some countries, it is possible to transfer money from the national **Post**bank 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 3 (Euro 1.50) expenses for the Treasurer. Please do not send cheques drawn on a bank from your country (except UK) but filled out in GBP (horrible expenses then).
If you prefer to reduce bank expenses, you may pay several years fees in advance.
It is also possible to pay by credit card (EURO-/MASTERCARD or VISA; no others). Please write or fax to the Treasurer your full card number, expiration date and the amount. Add 5% expenses to the amount. The Treasurer will convert that amount into DEM and then charge your credit card account in DEM.
It is not recommended to use e-mail for sending credit card numbers.
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.
The last 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!
Please ask the secretary or the treasurer for the user name and the password