



GIREP Newsletter

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EDITOR'S SECTION

In this Issue

- 1 Editor's section
- 2 GIREP Committee online meeting
- 3 New Co-operations within the PER & PE Community
- 4 GIREP present at Conferences of Co-operation Partners
- 5 GIREP Thematic Groups (GTG)
- 6 GIREP Conference Proceedings
- 7 Upcoming Conferences
- 8 What's going on? – Newsflashes from GIREP countries
- 9 GIREP Membership: Renewal & Fees

Dear Colleagues,

Electronic GIREP newsletters are a service to active members of GIREP as well as to everybody interested in GIREP. Since summer 2012 all newsletters are available for everybody on the GIREP homepage. Following the tradition, we will announce the publishing of a new newsletter through e-mail for all members and colleagues subscribed at the GIREP mailing list.

In February 2013 the GIREP newsletter has been recorded permanently as online publication in the ISSN register as follows:

ISSN 2307-0366

Key title: GIREP newsletter

Abbreviated key title: GIREP newsl.

Following the two stars and a wish strategy, I repeat and emphasise **my invitation to you to contribute to the E-Newsletter** (upcoming events, announcements, news from your countries, etc.). The deadline for messages to be included in the next issue of this newsletter is **October 30, 2013**.

I am looking forward to your contributions. Hope to see you at the WCPE in Istanbul. Have a nice summer!

Editor of GIREP Newsletter, Claudia Haagen

GIREP Committee online-meetings

In order to deepen and improve the communication between GIREP Committee members Marisa Michelini (President) has introduced monthly online-meetings of the committee. Although we could not always connect the way we had intended to or "suffered technical break-downs", finally most committee members, often even all, participated at intensive discussion processes. These meetings turned out to be fruitful and we managed to initiate numerous initiatives and projects summarized in this newsletter.

Finally the GIREP committee was successful in organising an intercessional meeting during the ICPE conference in Prague thanks to Leos' Dvorak (Treasurer) organization.

The next GIREP committee meetings will take place in Udine in April, 2014 and in Palermo in July, 2014.

New Co-operations within the PER & PE Community

Friendly relations to and exchange with other important organizations in the field of PER & PE have long been integral part of the GIREP culture. However, Marisa Michelini, the current President of GIREP, was very successful in formalizing co-operations to IACPE, CIAEF and LAPEN aiming at exchange of Newsletters, Web-sites and mutual reports at conferences with posters. Starting from this big achievement, strategies for even closer co-operation are being set up.

Below you can find copies of the agreements between GIREP and IACPE, CIAEF and LAPEN.

Acuerdo CIAEF-GIREP

El Consejo para las Conferencias Interamericanas sobre la Educación en Física y GIREP acuerdan cooperar en todo lo posible, en particular, con intercambio de información a través de sitios web intercambiando boletines informativos y el envío de los posters informativos preparados de las conferencias de las organizaciones respectivos.

Firmado por



Julia Salinas, presidente del Consejo para las Conferencias Interamericanas sobre la Educación en Física, por el Consejo



Marisa Michelini, Presidente de GIREP

Agreement between CIAEF & GIREP

IACPE-GIREP agreement

The InterAmerican Council on Physics Education and GIREP agree to cooperate in any way possible, in particular, exchanging information through websites and newsletters and sending the informational posters prepared for the organizations' conferences to one another.

Signed by



Julia Salinas, President of the InterAmerican Council on Physics Education, for the Council



Marisa Michelini, President of GIREP


5 Julv 2013

Agreement between IAACP & GIREP

LAPEN-GIREP agreement

The Latin American Physics Education Network and GIREP agree to cooperate in any way possible, in particular, exchanging information through websites and newsletters and sending information posters prepared for the organizations' conferences to one another.

Signed by



César Mora, President of LAPEN



Marisa Michelini, President of GIREP

Guayaquil, Ecuador, 6 July 2013

Agreement between LAPEN & GIREP



Agreement between IACPE (Julia Salinas) and GIREP (Marisa Michelini)

An overview of Physics Education in IACPE countries given by Julia Salinas, President of IACPE

Inter-American Conferences on Physics Education (IACPE)

Conferencias Inter-Americanas sobre Educación en Física (CIAEF)

Conferências Inter-Americanas sobre Educação da Física (CIAEF)

These conferences were originally an initiative of (and were held under auspices of) CLAF and the Organization of American States. During the third conference, which was held in Mexico in 1987, a permanent Council for the organization of the Inter American Conferences on Physics Education was created.

The Council for the Inter-American Conferences on Physics Education is nowadays made up of twenty physics educators representing twelve American countries: Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, México, Panama, United States of America, Uruguay and Venezuela.

Since 1987, the Inter-American Conferences on Physics Education have been held in different countries, generally every three years. The fourth conference was held in Venezuela in 1991; the fifth in United States in 1994; the sixth in Argentina in 1997, the seventh in Brazil in 2000, the eighth in Cuba in 2003, the ninth in Costa Rica in 2006, the tenth in Colombia in 2009, and the eleventh in Ecuador in 2013. The twelfth will be celebrated in Mexico in 2015.

As part of the opening ceremony of the conference held in July this year, there was presented an enlightening Council report on the current situation in Physics Education in the countries represented in the Council. For each country, the areas covered were the following ones: physics education in primary, secondary physics education, initial physics teacher training, continuing physics teacher training, research groups in physics education, graduate degrees in physics education, conferences and other academical meetings on physics education, physics education journals, 2009-2013 activities related to the recommendations of the Tenth Conference, other activities and proposals for physics education.

During closure activities of the Eleventh Conference, an agreement was signed between GIREP and the Council of the Inter-American Conferences on Physics Education. The presidents of both organizations agreed to cooperate in any way possible. In particular, exchanging information through websites and newsletters, and sending the informational posters prepared for the organizations' conferences to one another.

GIREP present at Conferences of Co-operation Partners

One integral part of cooperation between organizations on Physics and Science Education & Research are mutual participations at conferences. Thanks to the support of numerous very active GIREP members, GIREP will be represented at the following conferences:

AAPT Congress in Portland, 2013

Ton Ellermejer, former President of GIREP, agreed to represent GIREP at the AAPT conference in Portland in 2013.

InterAmerican Conference on Physics Education (IACPE) in Ecuador, 2013

Marisa Michellini was invited key-note speaker at the XI. IACPE and represented GIREP at this conference.

ICPE Conference in Prague, 2013

Marisa Michellini, Leos Dvorak, Wim Peeters and Claudia Haagen represented GIREP at the ICPE in Prague.

ESERA Conference in Cyprus, 2013

GIREP will be represented in ESERA with an invited symposium: **Content-focused research for innovation in teaching / learning electromagnetism: approaches from GIREP community**

Organiser(s): Marisa Michellini & Paula Heron;

Discussant(s): Ian Lawrence

Participants:

- **Gesche Pospiech, Marcus Harlapp:** Crucial aspects of the mathematics-physics relationship in electromagnetism
- **Jenaro Guisasaola:** Teaching-learning intervention module on electromagnetism at University: The case of field concept
- **Paula Heron, Ryan Hazelton:** Interpreting students' errors: Examples from electrostatics
- **Willem Peeters:** PCK in pedagogical coaching: questions and needs of teachers and consequent approaches
- **Marisa Michelini, Lorenzo Santi, Alberto Stefanel, Stefano Vercellati:** Building vertical paths in exploring magnetic phenomena developing formal thinking

Abstract

This symposium, organized by the Groupe International de Recherche sur l'Enseignement de la Physique (GIREP), will present a range of approaches to content-focused research and research-based instruction. For coherence, a single topic area, electromagnetism, has been chosen. The interpretative ideas developed by physicists to account for electromagnetic phenomena and the mathematical formalism used to represent these ideas make the subject ideal for exploring issues in learning and teaching that include the impact of students' prior real-world experiences, their understanding of the nature of the interpretative process, and their ability to relate formalism to phenomena. Electromagnetism also offers the opportunity to explore the relationships between macroscopic and microscopic models, as well as the "field" concept. Thus the research findings presented will have implications that go beyond the nominal content of electricity and magnetism. The symposium will address learning among primary, secondary and university students pursuing careers as engineers or scientists, and pre-service teachers. The themes will include the study of conceptual knots related to the content, the implications for teacher training, and the persistence of difficulties at the university level. Instructional approaches motivated by research findings will be discussed. Presenters from Belgium, Germany, Italy, Spain and the United States will present results from their own investigations and discuss their experience in attempting to improve instruction. The perspectives will vary with regard to research questions, methods, interpretative frameworks, and the role of specific research findings in driving educational innovation.

Thanks to all our members who were very supportive and officially represented GIREP at various occasions! We are looking forward to reports of these events for the next GIREP newsletters!! 😊

GIREP Thematic Groups (GTG)

GIREP Thematic Groups (GTG) are focused communities of GIREP members interested in contributing their expertise in particular facets of physics education, from working with children, through undergraduate work, to teacher training. This expertise is likely to be strong if they are research or development active in the area: doing work that yields insight or supports the development of practice. The aim of the GTG is to stay in touch as critical friends, exchanging thoughts, materials, and findings from the varied contexts in which we work and contribute to GIREP activities on the topic of GTG. The leader of a GTG takes responsibility for involving and organising the participation of active colleagues in the GTG in the conferences: offering an activity (workshop or poster-symposium, symposium) in each Conference or Seminar of GIREP. These bring the work back to the wider community, as well as being valuable times to discuss, refine expertise, research results and suggestions. The characteristics and focus of the work in each GTG are presented in the GTG proposal that a GIREP member submit to the GIREP committee for approval.

GTGs come into existence when someone offers to run one, and write to the GIREP committee. They look at this proposal, and try to offer advice so that it can run well, if that's needed. If the negotiations go well the GTG is announced in the newsletter. Since the newsletters are on the GIREP web site, you can always find out who is running GTGs and which ones are running by reading the newsletters.

Each GTG has a convenor, who will organise and coordinate activities amongst the members. You apply to be a member by contacting the convenor. To retain an active membership the idea is that you will be a member for a single year, which you can then renew. The success of the group will depend on the convenor and on the active participation of the members: but it's always been like that!

Interested parties can find out what each GTG is doing by means of regular reports from the convenor in the newsletter. The central aim of the GTGs is to continue focused conversations on the topics specified in the GTG proposal between conferences, and to bring the results to conferences.

GTG on Energy

The GTG on Energy (M. Michelini & P. Heron) released a notable paper, recognized by a large readership. You can find it on the GIREP webpage (<http://www.girep.org/>).

GIREP Thematic Group: Mathematics in Physics Education

(by GESCHE POSPIECH, TU Dresden, Germany)

The goal of physics education consists in conveying the principles and concepts of physics as complete as possible to the students. The description of physical processes by mathematical means is one of the most characteristic traits and most powerful tools of physics. In order to investigate these interrelations from an educational perspective, many questions arise. The overarching question is: Can the domain of mathematical structures improve the understanding of physical concepts and if so, in which way? What interplay of mathematics and physics is appropriate to teach topics of modern physics in school level? In this connection it is important to stress that a broad meaning of the term "mathematics" is needed: it includes all kinds of structuring and ordering physical processes: using abstract methods like idealization and modeling as well as using a broad range of mathematical elements such as diagrams, graphs and formalized sketches (e. g. arrows) and equations.

In order to address this complex theme from different perspectives and theoretical frameworks international efforts have to be made. Therefore all people interested in this subject "Mathematics in Physics education", are invited to contribute to the Thematic Group or join the Group during the GIREP Meetings and Conferences. The following aspects might be possible:

- Content-related research: Basis for all teaching mathematics in physics is the thorough analysis of physical concepts with respect to their mathematical representation, requiring to derive the essential formal structure.
- Interdisciplinary research: How can the different perspectives of mathematics and physics be exploited in analyzing the interplay? What are the conceptions of physics' teachers about the interdependence between mathematics and physics and how can they affect their lessons?
- Students' perspective: The development of learning pathways requires the exact knowledge of the difficulties pupils experience with the transfer between mathematics and physics. Questions could be: When and how should the relations between mathematics and physics be approached in the context of education? What kind of difficulties do students experience when using mathematics in physics?
- Teacher education: An important part would be the development and evaluation of courses for teacher education.

In establishing this thematic group we are looking forward to ideas concerning open questions, to workshops or meetings and to research contributions as well as critical remarks. All people interested in these questions are invited to put forward their ideas and to start a discussion about this subject.

Please email to gesche.pospiech@tu-dresden.de

GIREP Thematic Group: Physics Education Research at University (PERU)

(by JENARO GUIASOLA)

The Physics Education Research at University (PERU) is a Thematic Group within the GIREP, formed for those professionals with a special interest in research on the teaching and learning of university physics. The general aim of PERU will be to conduct a number of studies of teaching and learning physics curriculum topics at several universities within and beyond Europe. The Physics Education Research at University (PERU) Group aims to improve the education of scientist and engineering students across Europe. The group aims to become the leading voice for university physics education research in Europe and an authoritative source of information for the advancement of physics teaching and learning at university.

Objectives

This group serves to promote PER by:

1. Conducting research on teaching and learning of physics in university scientist and engineering courses.
2. Supporting activities that foster communication and exchange among professionals with an interest in PER, including the organization of a workshop in GIREP biannual Conference and actions associated with the workshop proceedings.
3. Disseminating results and promote workshops for teacher education at university.
4. Contributing to the development of a pathway for future educational policy, nationally and internationally.

GIREP Conference Proceedings

The GIREP webpage does not only want to inform you about things going on, but is also meant to be a resource on PER & PE issues. Conference proceedings play a crucial role here. So one major task of the GIREP committee is to make sure that proceedings of GIREP conferences are not only produced, but also disseminated.

DIGITALIZATION of Proceedings

As already mentioned in one of the last newsletters, we are working on the GIREP-website to update information and make the handling easier. One large project is to complete the list of digital proceedings available. So far you can find several proceeding of the period 1996 to 2009 in a digital version. We are currently trying to transform all other proceedings existing only in paper in a digital version.

GIREP-ICPE-MPTL 2010 International Conference, Reims, France

Proceedings from the joint MPTL-ICPE- GIREP conference in Reims are still not available in a final version. Despite some problems, the LOC and GIREP committee have managed to finish the peer-review process now. All submitted papers can be found on the Conference Web-page <http://www.univ-reims.fr/site/evenement/girep-icpe-mptl-2010-reims-international-conference/list-of-submitted-full-papers-for-proceedings,13181,22950.html>.

Accepted papers can be identified by their color code as well as papers chosen for the booklet containing selected papers. Feedback on the review will be sent to participants soon by the LOC.

GIREP-EPEC 2011 Conference, Jyvaskylla, Finland

Thanks to the excellent work of the organizers, the proceedings are online on the Conference Homepage <http://www.esera.org/publications/esera-conference-proceedings/science-learning-and-citizenship-proceed/table-of-contents/> and a paper version was distributed to all authors. Thanks to the Finish team for the wonderful organization! ©

WCPE 2012, Istanbul, Turkey

According to the LOC the peer-review process for all submitted paper is still in action. Participants will be informed about the status of their papers, soon.

Upcoming Conferences

IOSTE Conference 2013, Antalya (Turkey)

IOSTE Eurasia Regional Symposium & Brokerage Event Horizon 2020-EU Framework Programme for Research and Innovation takes place in Titanic Beach Resort Hotel, Antalya, Turkey from October 30-November 1, 2013. Details can be found on the conference website: <http://www.ioste2013.org/>

GIREP MPTL Conference 2014, Palermo (Italy)

After a one-year break, 2014 will again be a "GIREP-conference" year. The conference will be organized by GIREP and MPTL. Thanks to Rosa Maria Sperandeo and Claudio Fazio and their team, we are looking forward to a great conference in Italy. The LOC has already done a great deal of work. The GIREP Committee wants to invite you all to this conference:

Dear Colleague,

We warmly invite you to participate in the **GIREP-MPTL International Conference** on Teaching/Learning Physics: **Integrating Research into Practice** to be held on **July 7-12, 2014 at University of Palermo, Italy**.

During the last few years, evidence based Physics Education Research provided results concerning the ways and strategies to improve student conceptual understanding, interest in Physics, epistemological awareness and insights for the construction of a scientific citizenship. However, Physics teaching practice seems resistant to adopting adapting these findings to their own situation and new research based curricula find difficulty in affirming and spread, both at school and university levels. We hope that our conference will offer an opportunity for in-depth discussions of this apparently wide-spread tension in order to find ways to do better.

The organizers invite contributions addressing the following sub-themes in the field of:

- Physics Teaching and Learning at Elementary, Secondary and University Levels;
- Physics Teaching and Learning in Informal Settings;
- In-service and Pre-service Teacher Education;
- Physics Curriculum and Content Organization;
- Pedagogical Methods and Strategies;
- History of Physics in Physics Education;
- ICT and Multi-Media in Physics Education;
- Motivational Strategies and Metacognition;
- Socio-Cultural Issues.

The conference was initiated by Groupe International de Recherche sur l'Enseignement de la Physique (**GIREP**) and the Multimedia in Physics Teaching and Learning (**MPTL**) group, and it will be sponsored by the International Commission on Physics Education (**ICPE**)-Commission 14 of the International Union for Pure and Applied Physics (**IUPAP**), the European Physical Society-Physics Education Division, the Latin American Physics Education Network (**LAPEN**) and the Società Italiana di Fisica (**SIF**).

SUBMISSION OF PROPOSALS

The purpose of the GIREP-MPTL 2014 International Conference is to bring together people working in physics educational research and in physics education at all types of schools from the whole world to enable them to share research results and exchange experience.

The International Scientific Committee invites both empirical and theoretical proposals for:

- Single oral presentations
- Posters
- Workshops

The official language of the conference is English. Proposals should be submitted through the conference website: <http://www.unipa.it/girep2014/>.

Before submitting your proposal, be sure to read carefully the guidance on the website about the content of proposals and the submission process.

IMPORTANT DATES

Abstract Submission:

Period 1: November 15, 2013 - January 15, 2014

Period 2: January 16, 2014 – March 30, 2014

Registration:

Early: November 15, 2013 - March 01, 2014;

Normal: March 02, 2014-May 15, 2014

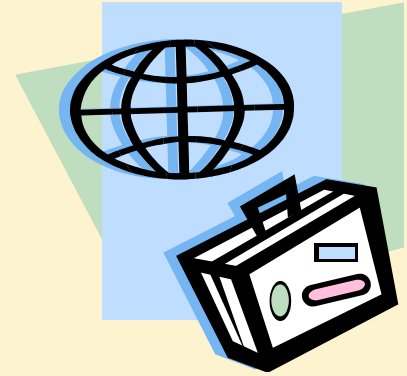
Late: after May 15, 2014;



What's going on? – Newsflashes from GIREP countries

This is a new section of the GIREP newsletter informing GIREP members what's going on in the GIREP member countries. We would like to encourage you to contribute to this section.

Send your contributions to claudia.haagen@unvie.ac.at.



A View from Physics – Physics Education Research at the University of Washington 1973-2013 by Lillian McDermott

Lillian McDermott recently wrote an interesting book on the achievements of the PEG at the University of Washington during the last 4 decades, which also reflects the development and movements within PER of this period. GIREP Committee, appreciating the important contribution of this group to PER, think you'll find this book interesting and informative.

GIREP Membership: renewal & fees

*Become member of
GIREP or join the GIREP
mailing list by registering
electronically*

The first half of 2013 will end soon, and so does the first part of the GIREP membership year.

We want to thank all members who have already supported GIREP for 2013 by paying the membership fee. If you are not sure about your status concerning membership fees, you can check it in the member section on our homepage. Payment information can be found on the GIREP homepage (<https://www.girep.org/information.html>).

We also invite everybody interested in physics teaching and learning as well as in physics education research to join GIREP. You can become member easily. Just follow that link: <https://www.girep.org/register.html> .

As a GIREP member you have **exclusive access** to the digital proceedings of the past GIREP conferences. In addition you can get a **reduced registration fee** for GIREP conferences.

Please send contributions for next GIREP Newsletter till October 30, 2013!