



# GIREP Newsletter

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## EDITOR'S SECTION

Dear Colleagues,

We are approaching the end of 2016 – a very special year for the GIREP Community. In the year of its 50<sup>th</sup> anniversary, GIREP has been re-established as an legal entity GIREP vzw, a non-profit organization to serve its members and entire physics education community even more efficiently than in the past. This year brought also new elections for GIREP Committee and GIREP auditor – you will find the details in the following pages.

On behalf of the GIREP Committee I would like to invite you to contribute to the GIREP Newsletter. There is so much going on in your institutions and your countries concerning physics education and physics education research. Please, inform us about upcoming events, new initiatives and all other announcements that are relevant to GIREP's ideas and mission, and you would like to share with the GIREP community.

The deadline for sending information to be included in the next, Spring issue is April, 30th, 2017.

We are looking forward to a fruitful cooperation on the development of the newsletter with GIREP representatives, GIREP members and GIREP friends.

**The GIREP Committee wishes you Merry Christmas and a Happy New Year!**

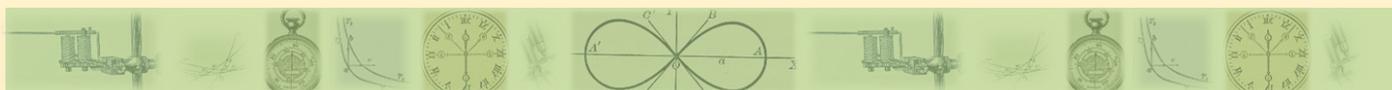
Dagmara Sokołowska

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## GIREP COMMITTEE AND AUDITOR ELECTIONS 2016

The elections for members of the GIREP Committee and GIREP auditor have been organized for the first time on-line, via the electronic system available for GIREP members. Each position in the Committee was presented and voted separately. The voting procedure started on the 10<sup>th</sup> of July and ended just in time to announce the election results to the GIREP General Assembly on the 3rd of September 2016.

The whole GIREP Committee, has been re-elected for the term of the next four years:

- **President of GIREP, Marisa Michelini**, University of Udine, Italy
- **Vice-President of GIREP in charge of activities aimed at universities and research, Claudia Haagen-Schuetzenhoefer**, University of Graz, Austria
- **Vice-president of GIREP in charge of activities aimed at teachers, Wim Peeters**, PONTOn vzw, Flanders, Belgium
- **GIREP Secretary, Dagmara Sokolowska**, Jagiellonian University, Krakow, Poland
- **GIREP Treasurer, Leos Dvorak**, Charles University in Prague, Czech republic

A new **GIREP Auditor** became **Ton Ellermeijer**, Foundation CMA, Amsterdam, Netherlands

## GIREP COMMITTEE ACTIVITIES

Since the last newsletter in March 2016 the GIREP Committee (GC) took part in seven online meetings and additionally in one in-person meeting was organized during the GIREP Seminar 2016.

The work of the GC work has focused on:

- Practical issues of organization of the celebration of the 50<sup>th</sup> Anniversary of GIREP and the GIREP Seminar 2016 in Krakow
- GIREP General Assembly during the GIREP seminar 2016 in Krakow
- Organization of the World Conference on Physics Education 2016 in São Paulo (Brazil)
- Proposals for organization of the future GIREP seminars and conferences (Dublin 2017, San Sebastian 2018)
- Practicalities in relation to legalization of GIREP vzw (bank account, PayPal account)
- GIREP cooperation with HOPE and other partner organizations
- GIREP representation at Physics and Science Education Conferences: MPTL 2016, WCPE 2016
- Development of GIREP Thematic Groups
- Involvement of GIREP national representatives
- GIREP-EPEC 2015 Conference Proceedings
- GIREP books
- GIREP web site and newsletter

## ANNUAL GIREP GENERAL ASSEMBLY 2016

### Minutes

GIREP GENERAL ASSEMBLY 2016 took place on 3rd of September, from 9:00 am till 10:40 pm during the GIREP Conference in Krakow. Altogether 43 GIREP persons were present, including four members of the GIREP Committee (GC).

The meeting started with voting on approval of GA agenda (43 votes pro, 0 counter voices, 0 abstentions).

Subsequently Dagmara Sokolowska, GIREP Secretary, presented an annual report on GIREP Committee activities during the period: 9th July 2015 – 3rd September 2016. She reported nine GIREP Committee on-line meetings and informed about the main discussed issues. She presented a list of available GIREP books in printed version and GIREP Proceedings, easy to reach via GIREP member site. The newest initiative of GIREP book, edited by Gesche Pospiech was mentioned. The Secretary reported also the renewal of legalization of GIREP that had taken place on the 2nd of January 2016, when GIREP vzw organization had been registered in Belgium as an NGO legal body. Subsequently a report on „Instructional practices in teaching physics at University level”, prepared by Claudia Haagen-Schuetzenhoefer, GIREP Vice-President, was read. It was followed by a report on country representatives, provided by Wim Peeters, GIREP Vice-President. Next GIREP collaboration with many organizations was recalled, together with the newest initiative of two agreements: the first signed between GIREP and The Physics Education Society in Japan and the second – between GIREP and D. S. Kothari Centre for Research and innovation in Science Education, Miranda House, University of Delhi, India, signed during the GIREP GA. Marisa Michelini expressed her wish for GIREP to get involved and cooperate more with other projects, similar to HOPE (Horizons in Physics Education) Network, in order to promote and develop Physics Education. She mentioned all the bodies GIREP had established close collaboration with, namely: AAPT, APS, CIAEF, EPS-PED, IACPE, iSER, IAPS, LAPEN, MPTL, PESJ (on the basis of a signed agreement) and ESERA and ICPE (without a signed agreement). She expressed her deep believe in enhancement and development of a good-quality research done in cooperation with above mentioned bodies, as well as by organization of well-prepared GIREP conferences and reinvented seminars where place would be given to in-depth discussions about Physics Education and research in this field.

Short information about GIREP representation at other international conferences was provided. Reports by GIREP Thematic Group Leaders on their activities and initiatives in the past year were presented in details. The report by GIREP President and Secretary ended with a short summary of WCPE 2016 in Sao Paulo, Brazil and GIREP Seminar 2016 in Krakow, Poland. It was followed by the Financial Annual Report presented by GIREP Treasurer, Leos Dvořák, short discussion on GIREP activities and policies and voting on approval of the GIREP Committee reports (43 votes pro, 0 counter voices, 0 abstentions).

Subsequently a new procedure of election of GIREP Committee members was explained and the results of the on-line voting were revealed. Entire GIREP Committee was reelected for the second term, i.e. Marisa Michelini as the GIREP President, Claudia Haagen-Schuetzenhoefer as the GIREP Vice-President, responsible for activities aimed at universities and research, Wim Peeters as the GIREP Vice-President, responsible for activities aimed at teachers, Dagmara Sokolowska as the GIREP Secretary and Leos Dvorak as the GIREP Treasurer. Ton Ellermeijer was elected as the GIREP Auditor.

Marisa Michelini thanked the GIREP members for taking part in elections and GIREP Committee members for their voluntary work. Finally Paul van Kampen, one of the organizers of the GIREP-ICPE-EPEC Conference 2017 in Dublin, Ireland and Jenaro Guisasaola, the organizer of GIREP Conference 2018 in San Sebastian, Spain invited the audience to the future GIREP meetings and distributed flyers. Two proposals from organizations in Vietnam and Russia for the organization of WCPE 3 in 2020 were mentioned, and one of them was presented in details by Ton Ellermeijer. This candidature was supported by two persons from the audience: Ed van den Berg and David Sokoloff. One proposal came out from the audience – to secure during GIREP conferences some extra time to share opinions and ideas in broader discussions.

## NEW CO-OPERATIONS WITHIN THE PER & PE COMMUNITY

In May 2016 Marisa Michelini, the President of GIREP was successful in concluding further cooperation agreements between GIREP and the Physics Education Society of Japan. The copy of the signed document can be found below:



### Mutual Agreement of Cooperation between PESJ and GIREP

PESJ (the Physics Education Society of Japan) and GIREP (the Groupe International de Recherche sur l'Enseignement de la Physique) hereby conclude this agreement to promote academic cooperation between the two organizations.

PESJ and GIREP will make an effort to promote and develop cooperation in the following activities, upon the principles of equality and reciprocity.

- Exchange of academic publications, information and flyers about each organization,
- Exchange of information of PESJ and GIREP conferences through their websites and newsletters, and/or emails to their members
- Offer of member registration rates at their conferences to members of either organization. Thus, GIREP members will be able to attend PESJ conferences at PESJ member rates and vice versa.
- Offer to develop an exchange of conference slots (in the form of a symposium, workshop, or a complete session of papers) at each other's conferences.
- Maintenance of open communication about relevant activities and events of the two organizations.
- Developing other ways of cooperation in the future based on the above premises.

In order to carry out the activities mentioned above, a memorandum will be exchanged after mutual consultation between the two organizations if it is necessary. However, each organization does not assume any financial responsibilities by this agreement.

This Mutual Agreement shall come into effect on the date of the signatures of representatives of the two organizations and shall be valid for a period of three years. It will thereafter be automatically renewed every three years subsequently unless either organization notifies its intention of termination at least three months prior to the expiration date.

PESJ – Physics Education Society of Japan      GIREP – Groupe International de Recherche sur l'Enseignement de la Physique

村田隆紀

Takatoshi Murata  
President

May 12, 2016

Marisa Michelini

Marisa Michelini  
President

May 10, 2016

During GIREP Seminar 2016 in Krakow, Poland, on the 3<sup>rd</sup> of September 2016, another document of collaboration has been signed by Marisa Michelini, the President of GIREP and Pratibha Jolly, the Principal at Miranda House, University of Delhi:



**Collaboration between  
D S Kothari Centre for Research and Innovation in Science Education  
Miranda House, University of Delhi, Delhi, India  
and  
International Research Group on Physics Teaching (GIREP)**

The D S Kothari Centre for Research and Innovation in Science Education (DSKC) established at Miranda House, University of Delhi, and the International Research Group on Physics Teaching (GIREP) agree to collaborate in areas of mutual interest for strengthening teaching-learning of physics.

In particular, the collaboration will manifest through initiatives that promote physics research-based practices, capacity building and education outreach programmes in physics at all levels. The two organisations will establish robust mechanisms for sustained expansion of collaborative programmes through participation in events, seminars, conferences. They exchange information through electronic media, website and newsletters. Further, they will explore possibilities for collaboration seeking funds from international organisations on themes of mutual interest.

As a partner institution, DSKC and Miranda House will endeavour to disseminate information about GIREP activities amongst other institutions, organisations and stakeholders in India interested in physics education.

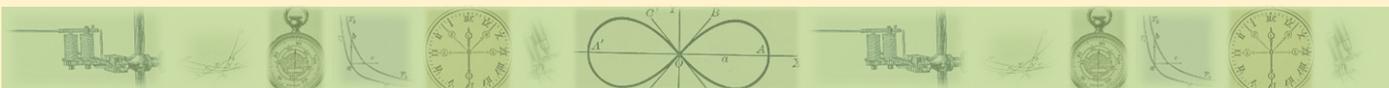
Both organisations agree to function within the framework of their respective rules and regulations.

Dr. Pratibha Jolly  
Principal Investigator, DSKC  
& Principal, Miranda House  
University of Delhi

*Pratibha Jolly*

Prof. Marisa Michelini  
President (GIREP)  
International Research Group on Physics  
Teaching

*Marisa Michelini*



## GIREP THEMATIC GROUPS (GTG)

GIREP Thematic Groups (GTG) are focused communities of GIREP members interested in sharing their expertise in particular facets of physics education, from working with children, through undergraduate work, to teacher training. 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. GTGs come into existence when someone offers to run one, and applies to the GIREP Committee. If the negotiations go well the GTG is announced in the newsletter.

### GTG on Energy

- Group Leader: Paula Heron (University of Washington, USA)
- Contact: [pheron@phys.washington.edu](mailto:pheron@phys.washington.edu)

### GTG Mathematics in Physics Education

- Group Leader: Gesche Pospiech (Technical University of Dresden, Germany)
- Contact: [gesche.pospiech@tu-dresden.de](mailto:gesche.pospiech@tu-dresden.de)

### GTG Physics Education Research at University (PERU)

- Group Leader: Jenaro Guisasola (University of the Basque Country, Spain)
- Contact: [jenaro.guisasola@ehu.es](mailto:jenaro.guisasola@ehu.es)

### GTG Evaluation of Learning and Instruction (ELI)

- Group Leader: Genaro Zavala, Tecnológico de Monterrey, Mexico
- Contact: [genaro.zavala@itesm.mx](mailto:genaro.zavala@itesm.mx)

### GTG Physics Preparation of Teachers in Grades K-6

- Group Leader: Stamatis Vokos, Seattle Pacific University, USA
- Contact: [vokos@spu.edu](mailto:vokos@spu.edu)

### GTG Problem Solving in Physics Textbooks

- Group Leader: Josip Slisko, Benemérita Universidad Autónoma de Puebla, Puebla, México
- Contact: [jslisko@fcfm.buap.mx](mailto:jslisko@fcfm.buap.mx)

## GIREP THEMATIC GROUPS REPORTS ON RECENT ACTIVITIES

### GTG Mathematics in Physics Education

During the 2<sup>nd</sup> WCPE 2016 in Sao Paulo, the GTG Mathematics in physics education organized a symposium which gathered ca. 30 participants. Discussion was carried on about :

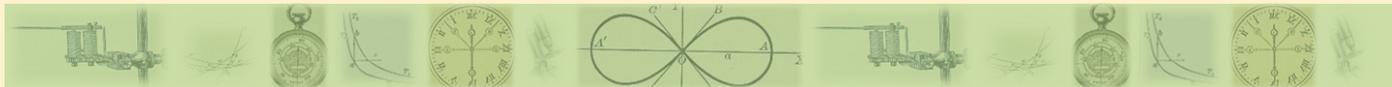
- Model of physics mathematics interplay
- Application to analysis of concrete tasks, related to derivations or everyday problems

The GTG leader organized a GIREP Symposium on “Mathematics in Physics Education” during the conference at Technische Universität in Dresden (31<sup>st</sup> October to 4<sup>th</sup> November 2016). It was supported by TU Dresden - Internationalization Strategy: “Connected to the World”.

### Future Scope: Preparation of a book on research concerning “Mathematics in Physics Education”

- Collecting current research results
- Reflecting on the status of research
- Rising new research questions

*Gesche Pospiech*



### GTG PHYSICS EDUCATION RESEARCH AT UNIVERSITY (PERU)

In the 2<sup>nd</sup> World Conference of Physics Education in Sao Paulo, Brasil (July 10-15), we organized the Round Table “Research-based Alternatives to Traditional Physics Teaching at University and College”. We provided an overview of trends with regard to different interactive methodologies of instruction and analysis of students’ learning. The Round Table was attended by more than 120 colleagues.

During the GIREP Seminar 2016 in Krakow (August 30 – September 3) Jenaro Guisasola took part as a co-leader with Dean Zollman in the development of the Work Group 1 “Experimental lab in introductory physics courses”. We discussed general objectives in introductory labs, what was the effect of scaffolding on the students’ behavior in the lab and the importance of evaluation as a source of information of students’ learning.

In relation to the next GIREP-ICPE-EPEC Conference in Dublin (July 3-7, 2017) up to now we have proposed a Symposium on “Different Approaches to Research and Innovation on Physics Education at College and University”. The Symposium includes presentations on improving physics education at College and University through both research of teaching-learning problems and research-based educational innovations. During the symposium well-founded examples of Physics Education Research will be presented (Claudio Fazio and Laurens Ballen) and, research-based innovative teaching strategies for ‘on line physics courses’ (Dean Zollman) and laboratory work (Tabitha Dreef).

We invite you to participate in our actions and to propose new initiatives. Please contact [Jenaro.guisasola@ehu.es](mailto:Jenaro.guisasola@ehu.es)

*Jenaro Guisasola*

### GTG Energy

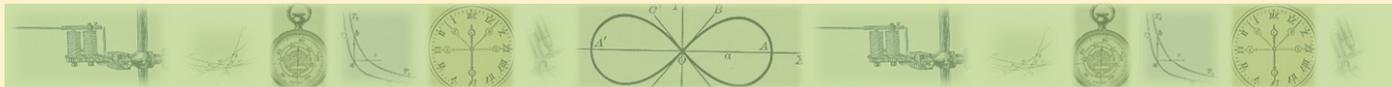
The energy issue has been repeatedly treated in GIREP seminars and conferences by individual authors.

For the GIREP 2016 Seminar in Krakow, the GTG energy proposed the Workshop on “Bridging between theory and experiments in teaching energy”, led by Y. Leahavi and A. Stefanel. The proposed abstract was the following :

Energy, unlike other concepts such as time, mass, or force, is commonly introduced in science teaching as a non-measurable, abstract concept which is related to theoretical considerations, formal calculations and mathematical representations. This promotes the development of a conception of energy as a vaguely defined non-unitary entity and renders relating it to observable processes and phenomena of everyday life difficult. Hence, the focus of the workshop will be to "normalize" energy by offering various approaches to teach it, similar to many other scientific concepts, as an empirical grounded concept. The workshop will comprise theoretical discussions as well as suggestions for hands-on and minds-on activities. The contributors are asked to demonstrate how they offer teachers at different school levels an empirical support for the theoretical statements related to energy, such as: A) energy forms/types, B) energy transfer, C) energy transformation, D) energy conservation, E) energy dissipation, as well as for its use as a crosscutting concept in addressing phenomena belonging to different scientific domains.

Due to few contributions received (3 of 6 authors), that workshop on energy was merged with others (in particular that on Conceptual Lab and Mathematization).

*Alberto Stefanel*



## INSTRUCTIONAL PRACTICES IN TEACHING PHYSICS AT UNIVERSITY LEVEL

As announced during our kick-off meeting on Instructional Practices in Teaching Physics at University Level at the GIREP conference in Wroclaw in 2015, there will be a POSTER SYMPOSIUM on Instructional Practices in Teaching Physics at University Level at the GIREP-ICPE-EPEC 2017 in Dublin (from July 3-7, 2017 <http://www.girep2017.org/ehome/index.php?eventid=129432&> )

I would like to invite you to take part in this symposium to introduce your expertise in this field to the GIREP participants. I would be also very grateful if you could forward this invitation to people who can contribute to this topic.

Please contact me: [claudia.haagen@uni-graz.at](mailto:claudia.haagen@uni-graz.at)

*Claudia Haagen-Schuetzenhoefer*

## HOPE NETWORK

HOPE is effectively the sixth thematic network in physics education in a series of networks beginning in 1996 with the European Physics Education Network (EUPEN). With an overall aim of enhancing the impact of physics within Europe and its visibility in society, the network researched and shared good practice within four themes: the factors influencing young people to choose to study physics; physics graduates' competences that enable them to contribute to the new needs of the European economy and society; the effectiveness and attractiveness of physics teaching in Europe's university physics departments and their competitiveness in the global student market; strategies for increasing the supply of well-trained physics school teachers and for developing links between university physics departments and the teaching of physics in schools. GIREP is one of the partners in HOPE Network.

HOPE is an academic network funded within the Life Long Learning Programme (2007-2013) project number 2013-3710\_540130-LLP-1-2013-1-FR-ERASMUS-ENW, whose overall objective is to encourage the best use of results, innovative products and processes and exchange good practice in order to improve the quality of education and training.

The last Annual HOPE Forum was held in Constanta (Romania) in September 2016 with keynotes presented by Laurence Viennot and Pratibha Jolly. Two round tables were organized:

- Strengths, Weaknesses, Opportunities, Threats - analysis of higher Education in Physics within an European context in the light of the activities and results of HOPE
- Teacher needs in different contexts

Each working group presented an overview of the work achieved during three years of duration of the project and proposed recommendations to the community. Among the recommendations that can prove the attraction of physics studies, the first year questionnaire combined with the interviews carried on a large scale suggested that inviting school parties to visit universities is better than getting staff to visit schools. Regarding the new competences fostering innovation and entrepreneurship, the survey carried out at the institutional level revealed that the physics departments should investigate whether and how "soft" skills are acquired inside their physics curricula. From the work done in HOPE, it appears that identical recommendations are emerging from different working group outcomes, resulting in possible integration of the four topics studied during the project. A more complete overview on HOPE recommendations will be published in the next HOPE newsletter.

More information about the HOPE network can be found in its newsletters: <http://hopenetwork.eu/press>.

Details about HOPE Working Group activities and instruments are available at: <http://hopenetwork.eu/content/activities>

Articles based on HOPE works and achievements can be found here: <http://hopenetwork.eu/conference-papers-collection>

## REPORT FROM WORLD CONFERENCE ON PHYSICS EDUCATION 2016 IN SAO PAULO, BRAZIL

### Contemporary Science Education and Challenges in the Present Society: perspectives in Physics Teaching and Learning.

Physics educators, teachers, researchers, and policy makers from around the world gathered at this second World Conference on Physics Education in São Paulo in July 2016. The conference was initiated by Groupe International de Recherche sur l'Enseignement de la Physique (GIREP) and the International Commission on Physics Education (ICPE) – Commission 14 of the International Union for Pure and Applied Physics (IUPAP). It was sponsored by GIREP, ICPE and the Multimedia in Physics Teaching and Learning (MPTL) group and endorsed by American Association of Physics Teachers (AAPT), Latin American Physics Education Network (LAPEN) and the Asian Physics Education Network (AsPEN). Altogether ca. 400 participant took part in the conference.



The vision for the 2016 World Conference on Physics Education was to follow a global participative process before, during and after the conference. The Conference was structured to help foster collaborations on physics education research and development which could transcend national boundaries.

The goal was reached through working sessions which developed action plans that strengthened the teaching and learning of physics at all levels and in many countries.

The 2016 World Conference on Physics Education is a concrete step forward in global cooperation. Envisaged as a series of conferences with a four year periodicity, it was a working conference with follow-up actions that presumably would carry over to the following conferences.

#### Presentation Topics:

- |   |  |
|---|--|
| 1. ICT and Multi-Media in Physics Education   | 10. Physics Curriculum                                 |
| 2. Teaching Physics Concepts                  | 11. Motivational Strategies and Metacognition          |
| 3. Learning Physics Concepts                  | 12. History and Philosophy of Physics                  |
| 4. Laboratory Activities in Physics Education | 13. Socio-cultural Issues                              |
| 5. Primary School Physics                     | 14. Physics Teaching and Learning in Informal Settings |
| 6. Secondary School Physics                   | 15. International Perspectives                         |
| 7. University Physics                         | 16. Various Topics Physics Education                   |
| 8. Initial Physics Teacher Education          |  |
| 9. Teacher Professional Development           |  |

#### Invited Speakers

**Dr. Ian Laurence**, Institute of Physics, UK

**Prof. Laurence Viennot**, emeritus prof. of University of Paris Denis-Diderot, France

**Prof. Leoš Dvořák**, Faculty of Mathematics and Physics, Charles University, Czech Republic

**Prof. Paula Heron**, University of Washington, USA

**Prof. Ton Ellermeijer**, Foundation CMA, Amsterdam, Netherlands

#### Proceedings

The conference papers will be published in the e-Proceedings and in a special issue of the Eurasian Journal of Physics and Chemistry (EJPCE). The electronic Proceedings will be composed of short-papers of 5 pages (oral presentation) or 3 pages (poster presentation – scientific and teacher rapport).



## REPORT FROM GIREP SEMINAR 2016 IN KRAKOW, POLAND

The GIREP Seminar 2016 in Krakow was a great opportunity to celebrate the 50<sup>th</sup> Anniversary of GIREP – International Research Group on Physics Teaching, gathering people interested to share their passion and their research in the field of physics education. The event was organized by the Faculty of Physics, Astronomy and Applied Computer Science of the Jagiellonian University in Krakow (Poland) and GIREP vzw, in cooperation with the American Association of Physics Teachers (AAPT), the European Physics Society – Physics Education Division (EPS-PED), the Multimedia in Physics Teaching and Learning (MPTL) and the International Commission on Physics Education (ICPE).

A retrospective session was organized on the first day of the meeting, with participation of noble guests who created and shaped GIREP ideas and work throughout 50 years. The organizers greatly appreciate the honorary patronage received from Prof. Andrzej Białas, the President of the Polish Academy of Science and Jarosław Gowin, the Ministry of Science and Higher Education. Opening ceremony was held in the building of the Polish Academy of Science. The celebration started with welcome words given by the President of the Polish Academy of Science, Prof. A. Warczak – Dean of the Faculty of Physics, Astronomy and Applied Computer Science and Prof. Marisa Michelini, the President of GIREP. It was followed by retrospection of GIREP aims and international cooperation given by GIREP President, and History of GIREP presented by Seta Oblak and dr Zofia Golab-Meyer. A special word was given via Skype by one of the first GIREP officers, Prof. Paul Black from King's College in London (the text of his speech follows the report). Special testimonials were also given by other past GIREP members:

- Prof. Manfred Euler
- Dr. Ton Ellermijer
- Dr. Ian Lawrence
- Dr. Michele D'Ana ( a letter)
- Prof. Gorazd Planinsic (a letter)
- Prof. Christian Ucke (a letter)

as well as the representatives of partner organizations cooperating with GIREP:

- AAPT – Prof. David Sokoloff
- APS – Prof. Dean Zollman
- EPS – Prof. David Sands, the President of EPS-PED
- ESERA – Prof. Costas Constantinou, the President
- IACPE – Prof. Marco Antonio Moreira
- IAPS – Leon Jurcic
- ICPE – Prof. Hideo Nitta, the Chair (a letter)
- iSER – Dr. Fatih Tasar, the President (a letter)
- LAPEN – Prof. Cesar Mora
- MPTL – Dr. Francisco Esquembre
- PESJ – Prof. Takatoshi Murata, the President (a letter)
- HOPE - Hendrik Ferdinande

The ceremony was closed with GIREP Anniversary Medals given to GIREP past and present officers and partner organizations, followed by the Welcome Reception

In the following days the work was divided between invited talks, oral presentations and interactive poster sessions, and the last day and a half was devoted to discussions in Working Groups. The general Seminar topic was **Research-based proposals for improving physics teaching and learning – focus on laboratory work.**

The overall aim of the seminar was to draw attention to the variety of aspects of laboratory work, on one hand forming the environment where physics teaching and learning take place and on the other - being the method for development of physics literacy. The seminar focused in particular on experimental labs, conceptual labs, multimedia labs, modern physics labs, research methods and the assessment of laboratory work.

Six Working Groups were established, each with two leaders, coordinating the oral, poster and discussion sessions. Each Working Group was represented by a keynote, up to eleven oral presentations and up to eleven interactive poster presentations. Altogether 121 contributions were presented by 96 authors.

#### Invited Speakers

Prof. Lukasz Turski, Centre of Science *Kopernik*, Warsaw, Poland  
 Prof. Dr. Manfred Euler, Emeritus Prof. of University of Kiel, Germany  
 Prof. Wolfgang Christian, Davidson College, North Carolina, USA  
 Prof. Marisa Michelini, University of Udine, Italy  
 Prof. David R. Sokoloff, University of Oregon, USA

#### Working Groups and their Leaders

1. Experimental Lab in introductory physics courses – J. Guisasola & D. Zollman
2. Modern Physics and Advanced labs – D. Sands & F. Corni
3. Lab Work and Multimedia – A. Muller & T. Ellermeijer
4. Conceptual Lab and Mathematization – A. Stefanel & G. Pospiech
5. Assessment for Learning Through Experimentation – C. Constantinou & Y. Lehavi
6. Low Cost Experiments and Inquiry – P. Jolly & D. Sokolowska

**The General Leader of WG Leaders: Ian Lawrence**

In-depth discussions were organized in two parts, in which the discussions were developed in five steps:

1. general overview of the topic
2. preliminary discussion of the most important problems
3. more thorough discussion into specific aspects and possible solutions of the problem
4. general summary
5. discussion on the contribution of the workshop to the outcomes of the seminar

GIREP 2016 Proceedings will be published in two forms. Keynote papers and some selected conference papers will be published in a printed form, with ISBN code by Springer. Other papers which pass the reviewing process will be published in an electronic form in the book of e-Proceedings, with ISBN code. The e-Proceedings will be available on the website. More information can be found at: [www.girep2016.confer.uj.edu.pl/](http://www.girep2016.confer.uj.edu.pl/)

We would like to thank all contributors, especially the Invited Speakers, WG Leaders and all Persons without whom the organization of the GIREP Anniversary event and the GIREP Seminar 2016 would not have been possible. We would like to thank specially dr Laurence Rogers from Leicester University, UK for the Organ Concert "A World of Sound".  
*Dagmara Sokolowska, on behalf of the local organizing Committee*



*Participants of GIREP-Seminar 2016 in Krakow, Poland*

## Address of thanks by Paul Black to GIREP meeting in Kraków, August 2016

I must first say is that I am very pleased and honoured to be able to speak to this celebration meeting. I am very sorry that it was not possible to me to be here in person and I thank Dagmara from arranging this surprise visit through the internet.

I think that the first GIREP meeting that I attended was in Copenhagen in 1973 and the last was in Torun in 1991. The Torun meeting was my first visit to Poland and it was a very special occasion for me. The topic was "Frames of Reference – from Copernicus to Einstein" and was wonderful that we were holding a meeting on this subject in the city of Copernicus .

Membership of GIREP was very important for me in the development of my career. In the early seventies I had begun to change my interest from research in Physics to research in Physics Education, but had only worked with a few people in England until I went to my first GIREP conference. That conference was exciting and encouraging: I realised that there were many in other European countries who knew that Physics was a wonderful subject and wanted to help school pupils to share their fascination and wonder. Moreover, I learnt about many new ideas and in the next few years. I made many contacts that were valuable for my work

One of the many topics that I learnt about then have become alive again for me as I help with a new project of my colleagues in King's, funded by the European Union, which aims to revive the teaching of science inquiry. We asked some teachers to look at and think about a few everyday phenomena and then suggested that they choose one and ask their pupils to look at what is happening and then invite these pupils to suggest why it is happening. Then they are to give pupils free use of the laboratory and to invent and try out their own experiments to test their hypotheses. At first, the teachers were not sure that this would work, and worried about their loss of control of a lesson.

However, after trying the approach they became enthusiastic, because they found that when pupils were left free to their own experimental tests, and then try them out, these pupils worked hard and argued hard about their work. Their pupils were now active and committed. They were not learning **about** science, they were **being scientists** and so sharing the wonder and delight that comes with exploring the world around them.

I hope we can all learn how to set young learners free to experience the joy of doing science – our first duty to them is not to teach them **about** the theories and methods which scientists have already established so they know about science. The first duty is to inspire them, by **doing** some science, to share the wonder and delight of scientific discovery, and then to help them to do it more effectively by using those theories and methods which are relevant to their inquiries.

## GIREP-ICPE-EPEC CONFERENCE 2017 IN DUBLIN



The GIREP-ICPE-EPEC 2017 conference will take place in Dublin City University, Ireland. The conference theme will be **Bridging Research and Practice in Physics Teaching and Learning**.

This conference will be hosted by the Centre for the Advancement of Science and Mathematics Teaching and Learning (CASTeL) at Dublin City University (DCU), Ireland and is jointly organised by:

- The Conference of International Research Group on Physics Teaching (GIREP)
- European Physical Society - Physics Education Division (EPS PED) and
- International Conference on Physics Education (ICPE) of the Commission C14 of the International Union of Pure and Applied Physics (IUPAP).

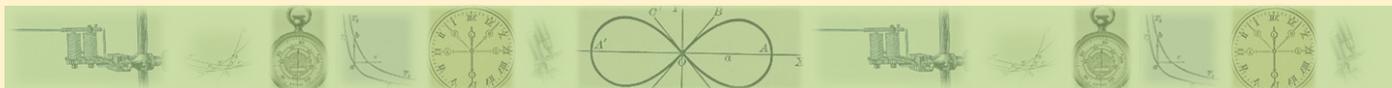
### Conference Strands:

- Teaching physics concepts: sharing practice
- Primary and secondary school physics
- University physics
- Laboratory activities in physics education
- Physics Teacher Education
- ICT and multimedia in physics education
- Cross-disciplinary physics
- Physics curriculum: development and implementation
- Assessment and evaluation of physics teaching and learning
- Physics education in informal and non-formal settings
- International collaboration in physics education

The organizers would like to acknowledge the **Honorary Patronage of the Institute of Physics in Ireland**.

### Scientific Advisory Committee

- Leoš Dvořák, Charles University in Prague, Czech Republic, GIREP and ICPE Committee Member
- Ton Ellermeijer, CMA, Amsterdam, The Netherlands, former GIREP President
- Zulma Gangoso, Córdoba, Argentina, ICPE Secretary
- Claudia Haagen-Schuetzenhoefer, University of Graz, Austria, GIREP Vice-President
- Eilish McLoughlin, Dublin City University, Ireland, Chair GIREP-ICPE-EPEC 2017



- Marisa Michelini, University of Udine, Italy, GIREP President
- Andreas Mueller, University of Geneva, Switzerland, EPS-PED Committee
- Hideo Nitta, Tokyo Gakugei University, Japan, ICPE President
- Wim Peeters, DKO (vzw) and PONTon vzw, Belgium, GIREP Vice-President
- David Sands, University of Hull, United Kingdom, EPS-PED Chair
- Dagmara Sokolowska, Jagiellonian University, Cracow, Poland, GIREP Secretary
- Dean Zollman, Kansas State University, USA, AAPT Representative

### Local Organizing Committee

- Eilish McLoughlin, Dublin City University, Ireland, Chair
- Paul van Kampen, Dublin City University, Ireland, Co-Chair
- Eamonn Cunningham, Dublin City University, Ireland
- Arlene O Neill, Trinity College Dublin, Ireland
- Veronica McAuley, National University of Ireland Galway, Ireland
- Leah Wallace, Limerick Institute of Technology, Ireland
- Shane Bergin, University College Dublin, Ireland
- Sheila Gilheany, Institute of Physics in Ireland
- Paul Nugent, IOPI Teacher Co-ordinator, Ireland
- David Keenahan, IOPI teacher Co-ordinator, Ireland

### Venue

GIREP-ICPC-EPEC 2017 will be held at the Helix Conference Centre in Dublin City University (DCU). DCU is a young, dynamic and ambitious university with a distinctive mission to transform lives and societies through education, research and innovation.

Since admitting its first students in 1980, DCU has grown in both student numbers and size and now occupies a 72 acre site in Glasnevin, just north of Dublin city, and very close to Dublin Airport. Dublin Airport serves 169 routes via 55 airlines every year.

### Call for Abstracts

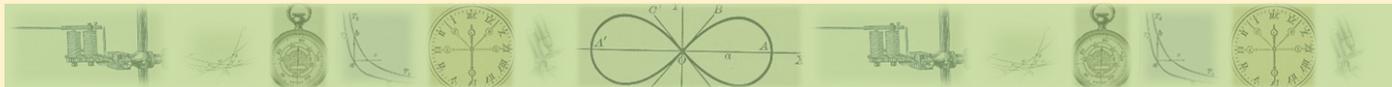
The abstract should not be longer than 450 words and must be in English. It should present research or teaching ideas related to both physics and education, and align with the aims of GIREP - ICPE - EPEC 2017. The research or teaching idea must not have been published previously. On-going studies or developing ideas, if properly contextualized and accompanied with preliminary results, are welcome.

In the case of a symposium submission, the chairperson of the symposium should provide a 450 word abstract which outlines the symposium. The chairperson is also responsible for submitting the abstracts for each proposed presentation.

Authors can alter their abstract(s) at any time up to the submission deadline of 1st March 2017. Please, visit: <http://www.girep2017.org/ehome/129432/489194/>

In case of any queries about the submission process or you wish to withdraw an abstract, please contact the conference administrator at [GIREP2017abstracts@keynotepco.ie](mailto:GIREP2017abstracts@keynotepco.ie).

**Conference webpage:** <http://www.girep2017.org/ehome/129432/294761/>



## WHAT IS GOING ON? NEWS FLASHES FROM GIREP COUNTRIES AND PARTNERS

### **Innovation in Science Education in Primary School and Kindergarten: At the Crossroads of Science and Humanities**

The Fourth Conference on “Innovation in Science Education in Primary School and Kindergarten: At the Crossroads of Science and Humanities” was held on Friday and Saturday, December 2-3, 2016 at the University of Modena and Reggio Emilia in Northern Italy (Venue: Reggio Emilia). It was devoted to the theme of Metaphor and narrative in science education.

On the first day, we had the opportunity to celebrate the founding and inauguration of the Center for Metaphor and Narrative in Science. The event featured keynotes from international speakers who are experts in various disciplines related to metaphor, narrative, and learning. On the second day, we picked up the thread of the past three conferences: the constructive dialogue between the world of research and that of the school and, especially, between science and humanities. The two days of the conference provided keynotes (December 2 and December 3 – morning) followed by the presentation and discussion of research and teaching practice (December 3 – afternoon) by the attendees of the conference. The conference was public. On December 2, the official language was be English (with slides in English and in Italian); on December 3, the language was be Italian and consecutive translation of the talks presented in English was be provided.

The articles of the selected papers presented at the conference, along with those of the main seminar talks, will be published in the Conference Proceedings 2016.

Detailed information about the conference can be found on the official website:

<http://www.pse.unimore.it/site/home/events/2016-conference.html>

*Federico Corni*

### **NOTE - a new initiative of the International Association of Physics Students**

IAPS has started a new project - Network for outreach training and education (NOTE). We are having our first (model) event in Zagreb in 3 weeks:

<http://www.iaps.info/activities/note-network-of-outreach-training-and-education/edu-weekend-zagreb>

The website says "only for IAPS members", but IAPS would like to invite students from GIREP network to participate as guests (same rules as for members + if one person wants to be a volunteer and help organizers with logistics on the spot we can waive the fee). It is also possible to include a short (15 min) GIREP presentation on schedule in case any students from GIREP wish to attend.

Any professors interested in NOTE can also contribute by reviewing the content and suggesting curriculum points, among other things.

Ana Milinović, [ana.milinovic@iaps.info](mailto:ana.milinovic@iaps.info)

Officer for education and outreach

International Association of Physics Students

Homepage: [www.iaps.info](http://www.iaps.info)

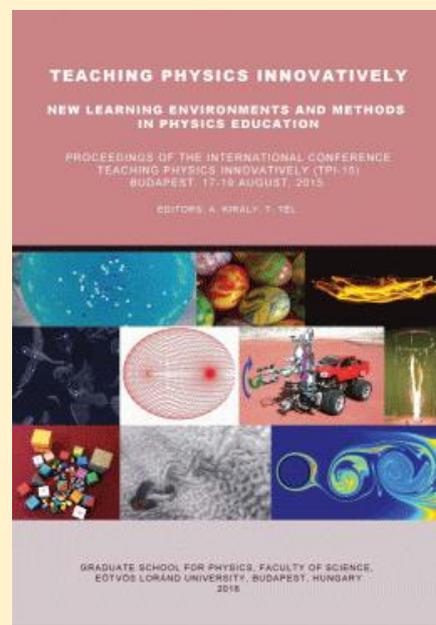
### Conference proceedings *Teaching Physics Innovatively*

In August 2015, at Eötvös University (ELTE) in Budapest, the “Teaching Physics Innovatively” Conference (TPI-15) featured plenary presentations, paper sessions and a panel discussion about recent challenges in physics education. The event was attended by more than 100 participants from 18 countries, and dedicated to the encounter of teachers and scientists, mediators and promoters of Physics, who may jointly build bridges between researcher and society. In cooperation with the European project Promoting Attainment of Responsible Research and Innovation in Science Education (PARRISE), with project webpage <http://www.parrise.eu/>, special emphasis was placed on the pedagogical interpretation of socially relevant issues in physics education.

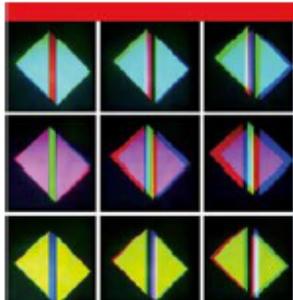
We are happy to announce that the proceedings of this conference (publisher: Graduate School for Physics, ELTE University, Budapest, editors: A. Király and T. Tél) is available now as an e-book, and can be downloaded from the website <http://parrise.elte.hu/tpi-15/proceedings.php>

From the content:

- Inquiry Based Science Education,
- Science centres and other informal learning opportunities,
- Environmental issues,
- Our cosmic environment,
- Socially sensitive issues,
- Multimedia and ICT,
- Physics experiments and methodological innovations,
- Contemporary physics,
- Nuclear issues,
- Roundtable discussion about socially sensitive issues in physics education.



On the webpage <http://parrise.elte.hu/tpi-15/slides.php> the separate papers are also accessible with their conference abstracts and presentation slides, and a "forum" is associated to each paper. Comments are welcome until 1 November 2016, afterwards the final version of the Proceedings will be generated and printed, subsequently, as a book.



# European Journal of Physics

## Focus on Physics of Sport

### Guest editors

**Simon Choppin** Sheffield Hallam University, UK

**Angela Fösel** FAU Erlangen-Nuremberg, Germany

10 June 2016 marks the beginning of the European Football Championship in France, and only four weeks later, the Olympic Summer Games are due to start! This makes 2016 a highlights for sports enthusiasts all over the world. Millions of fans shall watch the football matches and the Olympic Games live, on screen or at public gatherings.

The aim of this focus issue is to discuss the physical aspects of sports, preferably with the emphasis on football or a connection with the Olympic (Summer) Games of the present day, **ensuring that they are relevant to the teaching of physics**. This includes not only strictly physics considerations, but also papers which show, on the basis of sports activities, how physicists gain knowledge by means of scientific work methods.

Contributions are invited on any of the following, or related topics:

- Aerodynamics of sports projectiles
- Hydrodynamics in water sports
- Physical modelling in sport (impacts, kinematics, dynamics, biomechanics etc)
- Data analysis and visualisation in sport (using information from sensing systems)
- Statistical modelling in sport (outcome prediction, tactical simulation etc)
- The mechanics and materials of sports equipment
- Electronic and sensing systems in sport (computer vision, embedded systems)

**Window for submission: 10 June 2016 to 10 December 2017**

For more information, visit: [iopscience.org/ejp](http://iopscience.org/ejp) OR [ow.ly/IRjw3012OTp](http://ow.ly/IRjw3012OTp)

## FUTURE CONFERENCES



### APT Winter Meeting 2016

The AAPT winter Meeting will be organized on 18-21 of February in Atlanta, Georgia, USA

<https://www.aapt.org/Conferences/wm2017/>

### GIREP-ICPE-EPEC 2017

GIREP-ICPE-EPEC 2015 Conference/Seminar will be held in Dublin on 3<sup>rd</sup> -7<sup>th</sup> July 2017, organized by Eilish McLoughlin from Dublin City University.

<http://www.girep2017.org/>

### GIREP-MPTL International Conference 2018

This conference will be held on 9<sup>th</sup>-13<sup>th</sup> July 2018 in San Sebastian, Spain, organized by Jenaro Guisasola at Engineering School of Gipuzkoa.

## GIREP MEMBERSHIP RENEWAL & FEES

We would like to remind you that you can pay your GIREP membership fee (30 euro per year) either by bank transfer or via PayPal. Both possibilities are described in detail on the GIREP web page

<https://girep.org/information.html> available from the menu item "Info & Contact" on GIREP web pages.

After a login, you can also visit the page

[https://girep.org/member/membership\\_fees.html](https://girep.org/member/membership_fees.html) (available simply from the menu, too). You can see your membership fee payment history there.

At that page, there is also a possibility to pay your GIREP membership fee using your credit card via PayPal (though this is slightly more costly than sending the fee to GIREP as "a friend" via PayPal).

Please, be aware that the address of the bank of the GIREP account will change on January 18<sup>th</sup>, 2017; it will be: Heuvelstraat 56, 2530 Boeichout. The account number will stay the same. The information on GIREP webpage will be updated in due time.

Last but not least: It should be reminded that according the GIREP Statutes, Art.6, §5: "Members not paying their yearly fee before the 1st of July of the current year are no longer considered as members." So, please, be so kind and pay your membership fee in time.

*Leos Dvorak, GIREP Treasurer*



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 and for conferences of our partner organisations (see GIREP Newsletter 54).

