



GIREP Newsletter

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EDITOR'S SECTION

Dear Colleagues,

Electronic GIREP newsletters are a service to active members of GIREP as well as to all people interested in PE & PER. The newsletter section is accessible for everybody interested from the main web-site: (<https://www.girep.org/newsletters/newsletters.html>). Following the tradition, we will announce the publishing of a new newsletter through e-mail.

Usually the GIREP newsletter is supposed to appear three times a year. Due to strategic repositioning caused by the transition of presidents the autumn 2012 issue had to be skipped.

The GIREP committee invites 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 April 5, 2013.

A happy and successful 2013!

Editor of GIREP Newsletter, *Claudia Haagen*

A new GIREP committee was elected in Istanbul in July 2012. Ton Ellermeijer left the committee after three successful terms as president. Marisa Michelini followed him as the first female president of GIREP.

Changes in GIREP Committee: New President elected

In the general GIREP assembly in Istanbul a new committee was elected (https://www.girep.org/assemblies/GIREP_assembly_meeting_minutes_2012.pdf). After serving for 6 years as President of GIREP, Ton Ellermeijer stepped down. Marisa Michelini was elected as the new President, the first female President in the History of GIREP. All other members of the GIREP committee were re-elected. The first part of the newsletter introduces the new president of GIREP, Marisa Michelini, and provides an overview of Ton Ellermeijer's presidency. In addition, an overview of responsibilities within the GIREP Committee is given.

New PRESIDENT of GIREP: Marisa Michelini



Marisa is appreciated by very many people for her activities in Physics Education Research (PER) and Physics Education (PE) in Europe and elsewhere. The list of initiatives she has started or helped to start is very long. Generations of GIREP members do remember well what she has been doing for this community for many years. She has contributed to PER and PE activities aiming at widening the number of people involved and at highlighting the emerging contributions and experiences. But for her friends and all who know Marisa well a very impressive aspect is her enthusiasm, it shows in big and small initiatives, in her smile. In addition, she strongly respects the value of institutions; because of this attitude Marisa has several times accepted to carry on heavy commitments, even when it would have been wiser for her health to say no. For these reasons, and the list is not exhaustive, Marisa will work hard and wisely as President of GIREP.

Good life and go on.

Elena Sassi (Università di Napoli) on Marisa Michelini

PRESIDENT of GIREP from 2006 to 2012: Ton Ellermeijer



Ton Ellermeijer, is Director of CMA and outgoing President of GIREP. Ton is an experienced researcher in science education, curriculum developer and teacher trainer. He was Director of the AMSTEL Institute of the University of Amsterdam from 1997 up to 2010. Ton Ellermeijer received the Minnaert Prize for his contributions to Dutch Physics Education (1999) and the ICPE Medal (International Commission of Physics Education of the IUPAP, 2009) for his contribution to Physics Education worldwide.

Ton has been member of GIREP for many years, and served as 4 years Vice-president. During his presidency from 2006 onwards he initiated many successful initiatives of GIREP like the first WCPE.

Thank you Ton for all the effort you put into GIREP!



Further Members of the GIREP Committee

VICE PRESIDENT: Ian Lawrence



Ian Lawrence remains in the position of the first VICE president. As he is the most experienced one in the committee, carrying a lot of "GIREP specific" knowledge, we are very happy and grateful about his decision to stay for one more term. Next to many other valuable contributions for the development of GIREP, Ian produced a very detailed manual for future organisers of GIREP conferences, which can be found on our web-page https://www.girep.org/member/conference_organisers_manual.pdf

E-mail: Ian.Lawrence@physics.org

VICE PRESIDENT: Wim Peeters



Wim Peeters was re-elected as VICE president of GIREP. Wim's main working area within GIREP is support of high-school teachers. In WCPE 2012 Wim organised the first teacher-strand within a GIREP conference.

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TREASURER: Leoš Dvořák



Leos Dvorak remains in the position of GIREP treasurer. In his first term Leos used all his efforts to reorganise the GIREP member data base. We also thank him for doing a great job in collecting membership fees during the WCPE in Istanbul.

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Secretary General: Claudia Haagen-Schuetzenhoefer



Claudia Haagen serves for another term as secretary of GIREP. Among other things she is responsible for the GIREP newsletter, which is published three times a year (autumn, winter, spring issue). Contributions for the GIREP newsletter are welcome.

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A new GIREP committee was elected in Istanbul in July 2012. Here follows a short overview of the areas of responsibilities of each committee member.

Resume of the outgoing president Ton Ellermeijer

A letter to GIREP members and GIREP sympathizers

During the GIREP conference in Lund in 2002, Manfred Euler, at that moment president of GIREP, asked me to join the GIREP Committee. He also asked me to organize the GIREP 2006 conference in Amsterdam. Well, such decisions are not that easy. Of course, I felt honoured by his proposal of becoming president of GIREP.

My experience with GIREP goes back to 1984, when a GIREP conference was held in The Netherlands for the first time. Then questions like 'what is GIREP', 'for whom might GIREP be important' etc were on my mind. Before entering the hotel for the conference dinner, I could talk to Jon Ogborn. I asked him about GIREP. Jon had a clear opinion about GIREP, and I could feel he thought of GIREP as an important entity in Physics Education. He especially mentioned the role of GIREP to be a 'warm' and welcoming organization for everybody interested in Physics Education. To his opinion, GIREP should be a meeting place for experienced Physics Educators and Researchers, but also welcome newcomers and offer experienced teachers a platform. In other words, GIREP should cherish its low threshold and also its atmosphere of collegiality in which everybody is open and tries to contribute regardless of her background. Like Jon said: GIREP is a club. Well, 10 years later, I served 4 years as Vice-President and the last 6 years as President of GIREP. During these years the GIREP Committee tried to look after GIREP as good as possible, and to handle in the spirit mentioned above.

GIREP is known worldwide in the Physics Education community for its meetings: the GIREP conferences and seminars. But we are not the only organization in the world active in that field. One of the things we addressed quite actively during these years was the relation to other organizations and how to serve the Physics Education community by avoiding too many conferences. First, GIREP teamed up with EPEC, the initiative of the Educational Division of the EPS (European Physical Society). Since 2000 GIREP has been organizing seminars for the in-between years of the GIREP conferences. Starting from 2007 (Opatija) EPS and GIREP have been co-organizing these meetings. Second GIREP teamed up with MPTL, the special interest group for Multimedia in Physics Teaching and Learning. Since 2008 MPTL has been joining the main GIREP Conference with a special track.

For a very long time GIREP has had a special relation with ICPE, the International Committee on Physics Education of the IUPAP. Many times ICPE endorsed GIREP meetings and was quite often alongside a GIREP conference, ICPE organized their Committee meetings. During the Cyprus Conference in 2008 GIREP and ICPE took together the initiative to organize the first World Conference on Physics Education. In Istanbul, last July the first WCPE was held, and all involved organizations evaluated it as a positive initiative. First steps have already been taken for the Second Conference in 2016 (once in 4 years), most probably in Brazil.

Over these years the cooperation with the mentioned organizations has always been very pleasant and constructive. It is difficult to name the colleagues involved, too easy to forget somebody. However, it seems in our discipline that we mostly meet rather nice people. Let's keep that!

The conferences GIREP has been organizing were only possible due to the willingness of local organizers to put an enormous effort into it. It has been a great pleasure to experience during this period so many colleagues who reacted positively to our requests for hosting one of the conferences!

Besides the conferences the GIREP Committee addressed a number of other issues. Basically, the GIREP Committee consist of 5 colleagues voluntarily spending time and effort. To serve GIREP in the Committee has been a wonderful enriching experience for me, not the least because the spirit in the Committee has always been positive and very collegial. The present members form a real strong team and we may expect some new initiatives. So far, the GIREP Newsletter has appeared in a better shape, the GIREP website has improved; new initiatives to attract more Physics Teachers to meeting have been launched, etc. I like to thank the present Committee members Ian Lawrence, Claudia Haagen-Schuetzenhoefer, Wim Peeters and Leos Dvorak for the pleasant years together in the Committee. All of you have served GIREP in a very important way.

In Istanbul the GIREP Assembly elected Marisa Michelini as new President of GIREP. Prof Michelini is not new for GIREP, and GIREP is not new for Marisa. She served GIREP before in the Committee, and GIREP already owes her for many things she has initiated. GIREP is in very good hands with this present Committee, no doubt about that!

As many of you might know, during the years 2009 – 2011 I had a rather rough time, professionally. A new Dean of the Faculty of Science at University of Amsterdam decided to stop the Institute I directed, AMSTEL Institute. We, the previous staff of AMSTEL, still do not understand for why such a Faculty does not need our discipline Physics (Science/Math) Education. In fact, AMSTEL was in very good shape.

This brings me to an important issue: Physics Educators have to support each other as good as possible, because after more than 50 years, the position of our discipline is still not very stable and settled. In case you need good arguments why our work is important and should be supported I refer to a recent statement of the Educational Division of EPS.

For myself, I have been able to continue most of my work outside the University in the CMA Foundation (which I founded in 1987). And for that reason I hope to meet many of you - during the next GIREP meetings or in other settings, like EC-projects.

Ton Ellermeijer

Letter from the new President of GIREP: Marisa Michelini

Dear GIREP members and friends,

I wish you all a happy new year. I was elected President of GIREP in July 2012 and I have spent the past few months discussing with the past President Ton Ellermeijer and members of the Committee to understand the existing problems and to mature proposals towards advancing and initiating contacts with other potential partners of GIREP.

My active role begins now with the beginning of 2013. I want it to be characterized by decisions made through a process of discussions, founded on the basis of sharing ideas and proposals with the GIREP members and in the context of GIREP Committee. In this letter I wish to express **emotions, ideas** and some **proposals** for undertaking this program. I will start with my feelings and memories: they describe my spirit and in this sense they might be a correct premise.

EMOTIONS

Joy, enthusiasm and concern - was I taking too big a task for me? - were my immediate feelings about a year ago when Ton Ellermeijer asked me if I was willing to take his place as GIREP president. At first, although he told me he had discussed his intention to advance my nomination with the GIREP Committee, I thought he was just suggesting my name for a survey of a general nature.

I cannot hide my emotion for the great honour of having been elected President by the GIREP Assembly convened during WCPE 2012 in Istanbul. In fact I consider GIREP a great value for the world of physics education in the fields of research on the practice of teaching in schools and universities and for teacher education.

Presidents of great prestige who gave extraordinary contributions to the world of physics education preceded me. I expect facing a big task and I will try to perform the best, in continuity with the important work done in recent years by Ton Ellermeijer and the members of the GIREP Committee, with whom I intend to work in close harmony.

MEMORIES

A world of memories, affection and gratitude bind me to GIREP and to its members. I began my activity in GIREP in 1976 as a lecturer in the College-Summer Workshop on "The Teaching of Physics at Tertiary Level" at the International Centre for Theoretical Physics in Trieste. I served GIREP as treasurer from 1979 to 1984, as "Contact Member" for Italy from 1985 to 1994 and as Vice-President from 1995 to 2002. Since Montpellier I have attended all the GIREP Conferences, often joint with ICPE, entering the heart of the rich scientific work that took place there. The amazing people I met gave me valuable guidelines for my research in Physics Education. The richness of the knowledge and contributions of the participants taught me a lot and introduced me to people who were extraordinary on a human level. Organising the GIREP Conference of 1996 on "Teaching the science of condensed matter and new materials" in Udine was a very satisfactory effort.

I will never forget the aid of John Ogborn in many circumstances and in 1976 Eric Rogers sketching his typical questions of physics for the inquiring mind in Trieste. I will never forget my discussing experiments with Skoffield and Wenham or the night I locked myself in the ICTP library to prepare my first talk on quantum mechanics. I remember how much I enjoyed the Montpellier Conference in the same year and the friendship born there with Janez Ferbar. I remember the affection shown by Arturo Loria and Peter Kennedy and by my partner Barbara Pecori when we were organizing the 1980 GIREP-ICPE Conference in Trieste. I still smile remembering Brian Woolnough, with whom I had started to work remotely on action research by teachers, when we finally met. It was a funny encounter: it took me several minutes to identify him, as my poor English made me struggle with the pronunciation of his name. I felt very honoured to be part of a group in which there were those that I had always considered giants, to whom I had listened with great attention, learning a lot, because my relationship and friendship with so many of them continued in the following years. Silvia Pugliese Jona is the friend who became my tutor in this path and I always think of her as a symbol of generosity and teacher expertise. Matilde Vicentini, Elena Sassi and Rosa Maria Sperandeo had the role of focal Italian friends in the international context. Running the risk of forgetting somebody I also wish to remember the other foreign persons that most marked the steps of my professional development and entered my heart in the early years of my experience in GIREP. I mention them in order of time until 2000: J Lewis, P Black, G Marx, E Toth, P Thomsen, A French, Z Golab-Meyer, B Jennison, S Oblack, M D'Anna, N Joel, D Sokoloff, R Lambourne, C Ucke, L Rogers, L Jossem, M Euler, R Duit, A Tiberghien, L Viennot, U Ganiel, W Fischer, P Lijnse, R Gutierrez, F Hermann, J Solomon, R Girwitz, H Jodl, W Christian, J Barojas-Weber, R Driver, A Goldring, H Mikelskis, D Zollman, U Titulaer, R Millar, E Bagno, G Tibell, I Gallii, M Y Lehavi, B Mason, E. Kedzierska, Bat-Sheva Eylon, M Moreira, P Jolly, H Kuehnelt, J Rosenberg, D Scott, H Ferdinande, E Joansson, V Talisayon, K Papp, D Sebestyen, E Mechlova, E Dabkowska, G Planinsic, C Mora, M Stätzel, L Mathelisch, J Guisasola, M Ronen, T Ryu, P Atkins, J Smit, J Pacca, I Lawrence, G Merzyn, P Lijnse, K Kortland, R Thornton, L McDermott, P Heron, R Pintò, H Niedderer, R Fuller, I Verovnik, P Lonngi, D Ayala, G Pospiech, L Sabaz, J Slisko, R Jurdana, M Vollmer, C O'Sullivan, R Teoderescu, C Costantinou and many others, but I'll stop here! A special thought is for all the Presidents of GIREP and for the members who organised our Conferences. I thank all of them, even those who I am not able to mention, with much gratitude: in particular the many Italian GIREP members. I warmly invite you and all those that can help me to work in the best way for GIREP to send me their comments and suggestions.

REFLECTION: THE NATURE OF GIREP

GIREP has changed in all these years, evolving without losing its character of a diverse community of scholars with different skills. Its external nature to the institutional roles to which contribute, is what I think most characterizes GIREP's value and must be strengthened because it determines the gratuity of exchanges of expertise genuinely based on cooperation. This favours the improvement of physics education through research and educational experiments, both at school and at university. Just that non-academic character has favoured and promoted the integration of the skills of the best researchers, academics and secondary teachers in physics, research, education and innovation. This richness is represented in the GIREP Committee by two vice-presidents: one coming from the university and the other from the school (worlds). GIREP is one of the few organisations that give attention to university teaching / learning; in my opinion, in the coming years we will have to boost our attention towards improving the physics formation at university level, and not only for the degrees in physics. Physics for the other scientific degrees should be one of our challenges.

The educational research that characterizes GIREP is content related. It is curricular, empirical research and R&D, in the frameworks of the Model of Educational Reconstruction and of Design-Based Research, mainly focused on innovation. The role of ICT in contributing to overcome conceptual knots and in enhancing learning goals with a focus on laboratory work and computer modelling has rightly occupied an increasing space in recent years and I hope will still be able to collaborate with the MPL group.

Teacher education research and practice is another area that has always been present in the contributions to GIREP. It saw a big improvement with the Barcelona Conference and continued to be fertile in recent years: we must keep it alive. Qualified researchers and university teachers, although not directly involved in physics education research, have found sources for the improvement of their work in the GIREP activities and in its publications.

I wish that this co-presence will continue in our activities and that each of them: the contexts of research, experience, practice and reflection will be clearly identified in future GIREP conferences. The document recently prepared by the GIREP Committee offers guidelines for the organization of Conferences and underlines this important quality requirement of contributions.

GIREP AND OTHERS COMMUNITIES CONTRIBUTING TO PHYSICS EDUCATION

GIREP has members from all over the world but the most numerous group lives and works in Europe. The collaboration of GIREP with the ICPE belongs to history. Relatively more recent, but not less solid, is the collaboration with the EPS and MPL. Thanks to Ton Ellemeijer these collaborations between important parallel groups produced the birth of WCPE. I greatly believe in this international collaborative dimension and will do everything possible to strengthen it.

I began to discuss different forms of collaboration with the EPS during the Italian presidency of Luisa Cifarelli, a person with sweeping views. Similarly, I started a dialogue with Gorazd Planinsic, president of the Didactic Division of EPS and Francisco Esquembre, President of MPL. In the meanwhile I started relations with the AAPT and an exchange of representatives to each other's national meetings will be the first step.

I have also discussed in Istanbul with groups of African and Asian partners, suggesting that they create local GIREP groups and collaborate with other entities in their area. Since a few years I have established a partnership with LAPEN and would like GIREP to strengthen this collaboration with specific Country representatives.

ESERA, that represents the context of academic methodological research on scientific education, would be another natural partner for GIREP, in the perspective of a mutual enrichment in the area of research. I would be very happy if this happened.

ACTIVITIES OF GIREP

GIREP can only offer its members the Conferences, some other similar initiatives, and publications. This might be considered enough in the perspective of the above described cooperation and in the context in which each member work is for physics education.

Organizing the **GIREP CONFERENCES** is our primary task. The collaboration with the EPS can continue through the series of GIREP-EPEC Conferences and similarly we can continue our cooperation with MPL. The collaboration with ICPE, AAPT, LAPEN can enrich the planned initiatives or expand opportunities for members. The four-year WCPE is a new challenge we must already sustain. Along with this I would very much like GIREP to become the forum for the discussion and preparation of new projects and networks we might submit for financial support, for example, to EU.

INTERNATIONAL PROJECTS, such as Projects financed by the EU, but not only, are the active context of the world of Physics Education. I hope that the participants to these projects will consider the GIREP initiatives a context for project development and dissemination: this would enhance the GIREP context and strengthen the projects themselves. I invite all the people who are responsible for international projects to identify GIREP as one of the places where to present and discuss their on-going work.

GIREP SEMINARS were an extraordinary innovation. I think it is worthwhile to reactivate them as exchange forums with wide spaces for discussion on the substance of specific issues, perhaps in the context of other initiatives such as those mentioned above.

The **GIREP Books** have always been a great source for all those involved in Physics Education: their thematic nature has made them useful over the years. I do not want this GIREP potential to be lost. I would like the GIREP selected papers books to have continuity, maybe in electronic form if the funds do not allow for more.

The **GIREP NEWSLETTER** is an important tool for GIREP's internal and external communication. Thanks to Claudia Haagen-Schuetzenhoefer it has regained vitality in recent years. The first task I ask the GIREP Committee to tackle is keeping it rich and vivacious even in order to enhance our relationships through communication and collaboration.

The **GIREP THEMATIC GROUPS (GTG)** are initiatives that involve individual members in discussions on a topic they are working on, promoting direct and active comparisons and mutual enrichment in order to produce coordinated and organic contributions (Workshops, Symposia) at Conferences. Being offered by people who work on the specific topic, the GTGs can offer contributions for all participants of GIREP Conference without requiring much additional work from those involved, as was done for the GTG on energy that was operative in the past five years. The GTGs must be created on the initiative of their members: I really like this kind of spontaneous active contribution of individual GIREP members. So I strongly hope that proposals for activating new GTGs will arrive. The following issues on which workshops were organized and groups were active in past conferences are an example of possibly proactive GTGs:

- Teaching modern physics;
- Math and physics relationship in teaching / learning;
- Physics in contexts: hands-on and minds-on Physics;
- History of physics and physics education;
- Outreach and physics education;
- Quality in teaching physics at university.

I invite the colleagues who work on these issues to add to this list topics they consider useful for a GTG and to propose a GTG that they would be happy to coordinate. If shared by the GIREP members, this idea will surely increase the quality of the contributions to GIREP's activities.

GIREP INTENSIVE WORKSHOPS FOR TEACHERS (GIWT): this is another dream that I hope we will be able to achieve. The cooperation between schools with universities is one of the main challenges of the world of education in the knowledge society. This mission is inbuilt in GIREP and GIREP can contribute a lot in this field with several possible different lines of development, for example:

- a) studying ways for enhancing a vertical curriculum continuity;
- b) good practices in educational guidance activities, centred on the discipline considered (as problem solving activities with reflection of the work done and nature of science): attention to this aspect of guidance, to which only the subject related people can contribute, is missing in the international scene;
- c) comparing different initiatives on the connection between (oppure "different strategies for connecting") school and university;
- d) physics education research for innovation in the paths of teaching / learning;
- e) the contribution of ICT in overcoming conceptual knots;
- f) analysis of the problem of the popularization of physics research and school learning: How to integrate what belongs to the modern world of research in school activities and how to offer more than merely information on current researches in physics to the schools?

I would like GIREP to give its teacher members a chance to work on these issues or on others suggested by other members. I would like to see secondary and university teachers from different countries working in this context with physics education researchers: an opportunity for sharing the professional development of different skills. I am studying with Wim Peeters how to achieve this, but we need the GIREP members to help us by defining their preferred schemes of work.

Are these dreams achievable? Only if the individual GIREP members will participate, because they are GIREP. The GIREP Committee will do their best to facilitate the realization of what will be offered by its members.

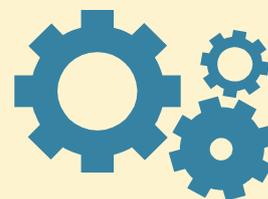
During the last few months the GIREP Committee have been discussing some of the following issues that were addressed in the course of transition of Presidents by Ton Ellermeijer and me.

- **Guidelines for the organization of GIREP Conferences:** we discussed a document that Ian Lawrence prepared last year; the document is ready and will be driving the future GIREP Conference to be held in Palermo, Italy, in 2014.
- **GIREP Proceedings:** we would like to be able to put all the proceedings of the organized Conferences on GIREP's web site. This task is difficult and expensive, but we hope to complete it.
- **GIREP book** of selected papers and referees' procedures for future initiatives.
- **GIREP and legal entity status:** this long-standing problem requires a balance between the establishment of a legal entity and increased bureaucracy and costs.
- **Future role of the GIREP Newsletter:** Claudia Haagen-Schuetzenhoefer has revitalized the GIREP Newsletter that is kept alive by her intense personal commitment. I invite all GIREP members and supporters to contribute. I consider it the most important tool for the internal collaboration of GIREP members.
- **GIREP financial situation:** Dvorak Leos is putting a lot of care to the budget of GIREP and the collection of fees, but funds are small. The mere initiative of printing GIREP Proceedings could absorb them all. The available amount at December, 31 2012 is € 12.133,00 and we are discussing whether or not we can organize a Committee meeting in 2013. We are discussing the priority list. The GIREP Committee thanks the members who want to help us with suggestions in our choices.

I apologize for this long letter in which I tried to summarize some ideas for the future. **The great value of GIREP is its members. I wish you will send us suggestions for the future.** Thanks in advance and best wishes for a prosperous 2013.

Marisa Micheli

Udine, 1/1/13



The new GIREP Committee is looking forward to a good cooperation with all GIREP members and associates.



The 1st World

Conference of Physics Education in Istanbul

WCPE 2012 from the Local Organisers point of view

On behalf of the Local Organization Committee I am very glad to look back on a successful conference. So far the WCPE in Istanbul was a unique event, bringing together physicists, physics education researchers, physics educators and teachers from all over the world for the first time. We are confident that this jump start will boost further enthusiasm to organize world conference in every four years from now on. At this conference we had participants from all continents and from countries very far from Istanbul. We had 230 delegates, 68 doctoral students, 31 teachers participating in this conference from 49 countries. They were from Argentina, Armenia, Australia, Austria, Belgium, Bosnia and Herzegovina, Brazil, Canada, Colombia, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, India, Indonesia, Iran, Ireland, Israel, Italy, Japan, Latvia, Malaysia, Malta, Mauritius, Mexico, Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Russia, Saudi Arabia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Turkey, UK, US, and Uruguay. During the 6 days of the conference we had 249 oral presentations, 27 workshops, 12 symposia, and around 100 poster presentations together with 5 keynote speeches. On behalf of all participants I wish to thank the sponsors and supporters: IUPAP, ICPE, EPS, TÜBİTAK, GIREP, MPTL, Rentech, Vernier, APS, IOP, and Amasya Üniversitesi for their support. We are also grateful to AAPT, AsPEN, and LaPEN for their endorsements of the conference.

M. Fatih Taşar (Head of LOC of WCPE 2012)



(Foto: Shinjiro Ogawa)

WCPE from MPTL's point of view (Francisco Esquembre)

Multimedia in Physics Teaching and Learning (MPTL) is a multidisciplinary group of motivated instructors and researchers focused on the use of computers in teaching physics.

Being a relatively small group (as compared to the WCPE community), the recent WCPE conference held in Istanbul, in July 2012, has been an excellent opportunity for MPTL members to both:

- i) meet other colleagues interested in Physics Education, from different and maybe wider perspectives, and
- ii) show our particular point of view to an audience larger than our own meeting allows.

Besides contributing papers and posters to the main stream of the conference in its different sections, the MPTL group had the opportunity to organize a Plenary Symposium on our own topic, namely the use of computers in physics teaching and learning. The format was perfect for us. In a joint (and plenary) session we could show in succession a number of presentations that covered our perspective as a whole, which was followed by a large number of WCPE participants. This session allowed us to send our message clearly to the community, and we are therefore very much in favor of organizing similar future session within the next conferences. We are also very thankful to the organizers, because they helped us in every way to reach the largest possible visibility.

Finally, we would like to take this chance to invite, as we did during the conference, every interested person to attend our MPTL'18 meeting, to be held in **Madrid, Spain next September 11th to 13th, 2013**. The web page for this conference is <http://mptl18.dia.uned.es/mptl18>.

You are all welcome to come!

Francisco Esquembre (*President of MPTL*)

WCPE from a PER newcomer's point of view

WCPE 2012 – Meeting the World of Science Education

Being a researcher sometimes consists of solitary work: sitting in front of the PC, reading publications, gathering information and, of course, writing your own articles. Parallel to this kind of work, however, there are time slots that are dedicated to mutual exchange: national and international conferences. For young researchers like me, conferences not only provide opportunities to put one's own work on the map of the research community, but they are also a great chance to get to know the members of this world community. Even if you have already read several articles and books published by one researcher – meeting him or her in person is a unique experience for every young researcher.

The GIREP conference 2012 was entitled World Conference on Physics Education, a name that showed its ambitious aim. While preparing for this conference, I was curious to see if these high expectations were going to be met by the organizers. The statistics themselves seemed to be convincing: Researchers from 49 countries came together to listen to plenary sessions and participate in workshops. All in all, there were nearly 400 contributions in the form of talks, poster presentations and workshops.

My personal experiences at the conferences were overall quite positive: The marvellous city of Istanbul proved to be a great location. The international atmosphere gave me the chance to meet colleagues from many different countries that I probably would never have met at national conferences. It was especially interesting to exchange my latest research results with workgroups who work on similar topics. Retrospectively, these talks not only broadened my knowledge about existing research in my field, they also provided a starting point for future collaboration with other workgroups.

Despite my overall positive review of the conference, I would like to give some suggestions for improvement. During several talks, I got the impression that the results presented were not really based on empirical evidence. Of course, it is always nice to see new ideas for physics teaching, but those ideas should only be presented if there is empirical evidence showing that these concepts really work. The local organization, as well as the responsible organizational group preceding the conference could be improved. In my mind, it is absolutely necessary to publish the conference program early enough, that the individual planning of the trip can be adjusted. Furthermore, the accommodation problems that arose did not meet my expectations of an international conference. Hopefully, these problems will be seen as potential areas for improvement so that the next World Conference on Physics Education will fully live up to its name.

Susanne Neumann (*PhD- student, University of Vienna*)

WCPE – the 1st teachers-strand: from a teacher's point of view

A Report on the World Conference on Physics Education (WCPE) 2012 and Special Program for High School Teachers

I participated in the World Conference on Physics Education (WCPE) in Istanbul from July 1st to 6th. There were five plenary lectures, one symposium, two workgroups, 26 workshops, 110 poster presentations and 251 oral presentations. About 20 researchers and teachers from Japan attended the conference. The conference was held at Bahcesehir University in a very beautiful seaside area in New City, Istanbul.

SPECIAL PROGRAM FOR HIGH SCHOOL TEACHERS:

20 teachers from 13 countries gathered in the Special Program for High School Teachers. I joined three sessions in this program.

In the first session, we introduced ourselves and listed up questions about the education system, teachers' salaries and school facilities in other countries. It was interesting to note that teachers from different countries had similar questions. In the next session we introduced teaching materials to each other. A Portuguese participant introduced the website "Scientix" where teaching materials in one's own language can be obtained on demand through a translation service. I would like to see a similar system available in other parts of the world. GIREP could play an important role in this kind of project to develop physics education internationally.

On the second day, we visited a private high school near Istanbul, which has a course for the International Physics Olympiad (IPhO). The teacher explained the difference between the national exam and his course. There may also be differences in other countries because multiple-choice questions cannot always measure a student's essential understanding. The school has a science museum with many hands-on exhibits designed by students. When elementary school children visit the school, high school students explain concepts of these exhibits.

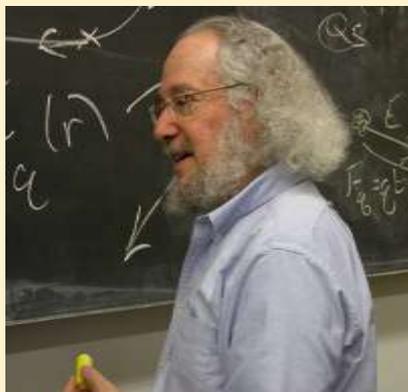
It was a valuable opportunity to meet and to talk with teachers from different backgrounds, and thus learn about common problems and different features among countries. I hope that more teachers will join the next meeting.

Shinjiro Ogawa (Waseda University High School)



(Foto: Shinjiro Ogawa)

WCPE - The Medal of the International Commission on Physics Education (IUPAP C-14) for Joe Redish



Joe Redish – Winner of the ICPE Medal

(Source: <http://americanradioworks.publicradio.org/lectures/tomorrows-college/lectures/rethinking-teaching.html>)

Joe (Edward F.) Redish was awarded the I Medal of the International Commission on Physics Education (IUPAP C-14). Joe Redish is a Professor of Physics at the University of Maryland in College Park. He received his undergraduate degree Magna Cum Laude from Princeton University and his Ph.D. in theoretical nuclear physics from M.I.T. in 1968. He has been at the University of Maryland ever since, and served as Chairman of the Department of Physics and Astronomy there from 1982-1985.

His research in nuclear theory emphasized the theory of reactions and the quantum few-body problem. As a nuclear theorist he served on the national Nuclear Science Advisory Committee and served as Chair of the Program Committee for the Indiana University Cyclotron. Since 1985 he has been actively involved in the subject of physics education. His current research effort is devoted entirely to physics education at the college level.

Prof. Redish is a fellow of the American Physical Society, the AAAS, and the Washington Academy of Science. He has received awards for his work in education from the Washington Academy of Science, the Maryland Association for Higher Education, Dickinson College, Vanderbilt University, and the Robert A. Millikan Medal from the American Association of Physics Teachers (AAPT). In 2005, he received the NSF Director's award as a Distinguished Teaching Scholar.

Congratulations!

(Source: <http://umdperg.pbworks.com/w/page/10511199/Joe%20Redish>)

Upcoming conferences

This is a new section of the GIREP newsletter informing GIREP members about upcoming conference in the field of Science Education & Science Education Research. We would like to invite you to contribute to this section.

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

Conference Announcement: MPL Conference 2013

Madrid, September 11-15, 2013

Multimedia in Physics Teaching and Learning (MPTL) is a multidisciplinary group of motivated instructors and researchers focused on the use of computers in teaching physics.

We would like to take this chance to invite every interested person to attend our MPTL'18 meeting, to be held in Madrid, Spain next September 11th to 13th, 2013. The web page for this conference is <http://mptl18.dia.uned.es/mptl18>.

You are all welcome to come!

Francisco Esquembre (*President of MPTL*)

Conference Announcement: ICPE-EPEC 2013

Prague, August 05-09, 2013



The International Conference on Physics Education, **ICPE-EPEC 2013**, will take place in Prague, Czech Republic. The conference is organized by The International Commission on Physics Education (ICPE), Commission C14 of The International Union of Pure and Applied Physics (IUPAP), The European Physical Society Physics Educational Division (EPS PED) and by The Faculty of Mathematics and Physics, Charles University in Prague.

The general focus of the conference will be Active learning – in a changing world of new technologies. “**Active learning**” is meant here in a broad sense, ranging from special techniques, methods or strategies to any ideas and approaches that help pupils and students to become more active – to make teaching and learning more vivid, effective, attractive and rewarding for both students and teachers and also to support deeper understanding, better physics reasoning, development of cognitive skills, science competences and more. We hope that many concrete examples of what really works will be presented because they are inspiring for all of us be it a small improvement in your practice or major achievement. On the other hand, there will be also room for more general ideas and thought-provoking vision. All such contributions will be equally welcomed.

We expect 300+ participants from the whole world. Prague is a nice and attractive city, and ICPE-EPEC 2013 is a good opportunity to visit it – either first time in your life or again. The capacity of the conference centre is limited to 400 participants, so, do not hesitate to register. Registration will be open since the beginning of December 2012.

Because there is no GIREP conference or seminar in 2013, ICPE-EPEC provides also the chance for you, the GIREP members, to meet in 2013 and to share your ideas and results – and we will be glad to see all of you in Prague. Therefore, even though ICPE-EPEC 2013 is not a GIREP conference, we offer slightly reduced fee to the GIREP members.

You will find all necessary information at conference website

<http://www.icpe2013.org>

The conference will take place in the hotel Don Giovanni that will provide both conference rooms and accommodation, everything at one place. It will give us more time and chances to meet, talk and discuss. However, you can easily combine the attractiveness of the conference with the attractiveness of the city: using the underground (the station is just next to the hotel), it takes only ten minutes to get to the centre of the town.

So, do not miss the opportunity to experience both the magic of Prague and the fireworks of ideas and results that will be presented by all participants from the worldwide community of physics education and physics education research. Also, surely do not forget to supply those fireworks by your own flares and sparks!

Looking forward to see you in Prague,

Leoš Dvořák (Head of LOC)



The Two Annual Conferences on Physics Education and Physics Laboratory in IRAN

The Union of Educational and Scientific Societies of Iranian Physics Teachers (UESSIPT) was established to coordinate the activities of the physics teachers' societies throughout the country. Of the main activities of the UESSIPT are to improving and updating teachers' knowledge in physics, help teachers to enhance their effective teaching and reinforce researches in physics education. The UESSIPT was established in 2002 by 14 provincial physics teachers' societies. It has now turned into a major organization with about 5000 teachers in 30 provincial societies. The central executive council coordinates and directs the endeavours at the national level.

The UESSIPT holds physics education conferences every year. The thirteenth Conference on Physics Education and third Conference on Physics and Laboratory will be held 22-24, August 2012 at the University of Zanjan. Researchers and teachers around Iran negotiate about their experiences and scientific findings during previous year. Participants also attend the lectures and workshops. Main topics for this year are:

- Specific experience in teaching physics
- Teaching strategies and practices
- Research in Physics Education
- Professional training of teachers
- The role of experiment in teaching science concepts
- Evaluation of laboratory and practical activities
- Promote experimentation in science education
- E-learning and virtual labs
- The relationship between physics education and society
- Association scientific position in the scientific community
- Educational systems, curriculum and training package
- Theories of learning
- Design innovative experiments in Physics Education
- New physics
- Science education in universities and teacher training centres in review

Mohammad Reza Khosravipour

Representative of GIREP in Iran

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GIREP Membership renewal & fees

2013 is drawing to an end. We want to thank all members for supporting GIREP in 2012 and hope for further support. Fees for GIREP membership are again due at the beginning of 2013. 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>



Sharing expertise on conferences

Conference Manual

For many years now GIREP has run a series of conferences. As a community we are heavily indebted to the local organisers who shoulder the burden of making these conferences a success on our behalf. The committee has traditionally taken a strong role in supporting the organisers and in ensuring that the good name of the conferences survives another iteration. Indeed, as the number of events has proliferated over the past few years, it has become even more important to do all we can to lighten the load all round. We do not have a large secretariat, or a large budget, so have to think (to adapt a quote from a New Zealand physicist).

Another significant factor to bear in mind is the wide range of interests and learning cultures present at the conference. GIREP has a genuine historical strength as a member organisation that all with a stake in developing the state of the art in the teaching of physics meet as equals. This obliges those present to think of the range of interests when developing a presentation, poster or workshop. Some of the advice in the manual is just a series of procedural notes, a set of aide-mémoire for the organiser. Other parts are more directly concerned with setting the tone and ensuring that the work we do between conferences affects other participants. So, indeed, somewhere deeply buried in the manual are some pertinent questions for us all, to help organisers when faced with abstracts.

Establish a structure to help authors pitch their abstracts and for you to judge them.

- Bearing in mind the audiences—what are the take-home messages?
- What kind of work is being reported?
- In what medium is it being reported, and an indication of why?
- What is the evidence base?
- How is it an improvement on existing practice internationally, if it's a proposal / development?
- On which age range is the work focussed?

These things may be obvious to you as you write, but the ability to imagine yourself in another's shoes is always good in education, and I'm sure that many members will have sat in sessions wondering how to judge what is being discussed. All such imaginings are helped by some categorisation and the manual offers a tentative.

GIREP conference participants (and their concerns) can be helpfully caricatured:

- Practitioner—what can I do with this information with my class next week? (teacher)(Craftsman)
- Supporter - how can I use this information to influence practice(curriculum developer, teacher coach)(Social engineer)
- Researcher- how does this new information illuminate the kind of stuff I am trying to find out? (Social scientist)(Scientist)

Most people are some kind of superposition of all three, but may be thinking about the take-home messages for each of the three groups will help these multiple personalities to connect with your talk. It has been the mission and vision (and distinctive feature) of GIREP to bring these people together internationally as co-equal participants in the service of physics education. The talks need to respect this.

There is other advice, of many kinds, all drawn from a long experience of such conferences. You can see how the work of the organisers and the work of the presenters meshes in this series of notes for presenters.

Advice for presenters:

- Do not try and explain everything about your work — that's the role of the paper you'll submit. The talk or poster should show you have something interesting to say, so that people can find out more, and also give you some feedback.
- Most people try to say too much, rather than too little. Think of your audience.
- If you're a not-very-experienced PhD student doing your first presentation it might be wise to let the organisers know. They might be kind to you.
- Avoid 'droning through' PowerPoint—the slides are there as a support, not the main event (that's you)
- Never, ever read your PowerPoint slides if you want the audience to be engaged. If you really have to read, express the same ideas graphically, or in a complementary way on the slides. Then read a separate script. Or consider presenting your ideas on a poster.
 - Putting stuff on website - could also be the abstract
 - Consider preparing a summary sheet to go on the conference pin-board for all those contact details
 - Be aware of the IT facilities, including software that can be assumed to be on presenter's computers.

- Design your presentation within the possibilities of installing software outlined by the organisers
- Don't be surprised by your own slides...
- Putting your presentation in context:
 - state the age range your evidence is Based on, e.g 11 year old children, teachers of 14–16year old children
 - State the number of individuals involved on which your evidence depends: e.g. one class of Children.
 - Clearly state, near the beginning, why you think the audience should be interested in what in what you have to say: what one thing do you want to learn from your presentation (they may get more, but what is the main one—yes, one. Not three. ONE.)
 - Do not cover the slides with writing or intricate diagrams: parsimony, elegance and intelligibility are connected. There are many pieces of sound advice for presenters. Please do not ignore them in an international educational conference.
- If it is a suggestion for an activity, then state clearly why you expect it to work. How, and why, is it an improvement on what happens on your country and internationally?
- What are the take home messages - For experienced teachers of physics, who might reasonably ask how this affects what they do (next week) in the classroom - For a researcher in physics education - For supporters of physics, curriculum developers and others who are trying to engineer a better experience across many classrooms
- How to annoy your audience (history has provided enough examples to make this necessary):
 - Read out the PowerPoint (think (no, really think) — if the reason you're reading it is that you believe you're not good enough with the language to read it then most of your audience will be able to read it faster than you)
 - Put too much information on each slide
 - Use such a small font that people cannot read it
 - Have too many slides
 - Use violently illegible colour schemes
 - Try to cover everything about your research /development in 15 or 45 minutes
 - Conflate a new tool / approach and the specific pedagogical approaches that might also be a necessary condition for its success
 - Talk as if the audience knows your education system (e.g. 7th grade means different things in different countries). Use ages.
 - Blatantly repeat a presentation done elsewhere
- How to avoid these difficulties:
 - Write yourself a script and put complementary information on the PowerPoint - e.g. graphs of your data, or do a poster
 - Concentrate on either the tool or the approach. Do not try to foreground both
 - Talk about the ages of the students
 - Have a clear idea what the 'take home' messages might be for each of the kinds of people in the audience

The manual is electronic, and on the GIREP website. Both are deliberate, because we hope that the community will use and improve them. **Contact your committee to make suggestions.**

https://www.girep.org/member/conference_organisers_manual.pdf

Ian Lawrence (Vice-President of GIREP)

Funding for in-service Training

In-service training for teachers is affordable as long as the in-service training is organized in the teachers' own country. But when the in-service training is organized abroad, the costs are rather high. This discourages a lot of teachers.

Luckily, the European Union provides funds, as long as the in-service training is listed in the Comenius-Grundtvig Training Database (which can be found on the internet: <http://ec.europa.eu/education/trainingdatabase>). A very user friendly search engine allows you to find an interesting course within just some mouse clicks.

1. Select the in-service training you would like to attend.
2. Subscribe for the course. You can do this by contacting the organization. They will provide you with a certificate of enrolment.
3. Contact your National Agency (which can be found on the internet: http://ec.europa.eu/education/lifelong-learning-programme/national_en.htm). They will send you a pdf-file in which you need to enter all the details about the course, your personal and professional details, a letter of motivation and a proposal for outreach.

Make sure to mention the importance of learning the English language in an international setting. Mention also the importance of cultural and educational transfer between participants from all over the European Union. (These are some sentences which result in a higher mark.)

You also have to provide a proposal for the finances. You have to make an estimation of travel costs (door-to-door), the number of days you will be spending abroad and also an allowance for everyday expenses.

4. Your National Agency will reward your pdf-file with a mark and contact you with (hopefully) good news.
5. Contact the organization of the course.

Good luck!

Tom Lambert



What's going on? – Newsflashes from 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 invite you to contribute to this section.

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

European Benchmarks for Physics Teaching Degrees

Source: http://www.stepstwo.ua.ac.be/~stepstwo/48_teaching-Eurobenchmarks-Oct.23.pdf

The last decade has seen rapid developments of university physics programmes. A principal driving force has been the transition to the Bologna architecture, which should provide a common structure for university degrees. Meanwhile, bachelor programmes have been established in virtually all European countries, and the introduction of master programmes is at least in its first stages. The transition has led many departments to rethink and redesign their programmes, often beyond the strict Bologna requirements. A second agent of change has been the introduction of various systems of quality control, in particular accreditation. Such systems have been established mainly on a national basis, but they are increasingly acquiring an international dimension. In the accreditation process, learning outcomes have to be specified, and a programme must in general be shown to fulfil international standards.

University educators, both in physics and in other subjects, have felt the need to exchange experiences and ideas with colleagues in other European countries in the context of European networks, generally supported by the European Commission. The physics education network EUPEN, continued in the STEPS and STEPS TWO projects², has been one of the earliest and most successful ones. Physicists also participated prominently in the interdisciplinary TUNING³ projects. More recently, the European Physical Society, whose members are National Physical Societies, carried out a study on the Implementation of the Bologna Process in Physics. In the context of this study, specifications for physics Bachelor, Master and doctoral studies were formulated⁴. The Bachelor document contains much more detailed curricular benchmarks, (Eurobenchmarks) produced by the STEPS TWO network.

Within the STEPS TWO network it was decided to attempt formulating a similar document for physics teaching degrees. In view of the large variety in school systems, and in teacher education systems as well, it was decided not to try to produce separate documents for Bachelor and Master Degrees, but to concentrate on the qualifications a teacher should have when he or she enters the profession, possibly on a provisional basis. Also, though in many regards the standards are valid for teachers for other age groups, the emphasis will be on teachers in upper secondary schools. Where there are different types of secondary schools, the emphasis will be on the types that prepare pupils for university studies. The Eurobenchmarks document for the Physics Bachelor programme concerned itself mainly with curricular standards, since specifications of competences had been formulated in other documents, e.g., from the TUNING project, and were concurrently being addressed in the EPS Bologna project. In contrast, we decided to also include competences (learning outcomes) in the present document. Many universities have formulated qualifications to be acquired by physics teacher education programmes (e.g., the Johannes Kepler University in Linz and the Free University in Amsterdam). Qualifications for science teachers were formulated in the European Pathway project⁵. The German and US task forces referred to below also considered physics teacher qualifications. These documents show broad agreement, but they differ in scope and level of detail, so we deemed it useful to include a specification broadly reflecting this European consensus roughly on the level of detail found in ref 4).

In physics teacher education programmes, there has been an additional reason for redesigning curricula. In many European countries, the number of students choosing physics or other science and engineering subjects has been declining, or at least stagnating. This threatens not only the future of these academic disciplines, but also the ability of European economies to stay in the forefront of technological innovation, as well as the prospects for informed discourse in society on questions related to science and technology. It was soon realised that the quality of high school teaching is a crucial factor in recruiting students to physics in particular and to science and engineering in general. At the same time, PISA⁶, TIMSS⁷ and similar studies showed that the stated aims of science teaching in high schools were often reached at best incompletely.

As part of the solution, a restructuring of the education of physics teachers was envisaged in many European countries, e.g., the recommendations⁸ of a working group of the German European Physical Society (DPG). An important element was the increase in the role of physics-related pedagogy (didactics of physics). Education in didactics should be research based, just like the physics parts of the curriculum, and research in physics education should be promoted as well. In the US, where similar or even more severe problems exist, a Task Force on Teacher Education in Physics⁹ was set up by the American Physical Society, the American Institute of Physics and the American Association of Physics Teachers. It recently presented its findings and recommendations.

In the next section, we formulate the competences a teacher should have in the fields of Physics, Physics Teaching and Applied Pedagogy, as well as some social competences essential to functioning as a teacher. The latter two are not specific to physics, but they are included both for completeness and because they may play a role in the design of the programme in Physics Teaching and even the Physics part (e.g., concerning communication skills). The following two sections contain the core curriculum, first in its general structure and then in more detail. The final section contains a few remarks on possible uses of these benchmarks

2 <http://www.stepstwo.eu>

3 <http://www.tuning.unideusto.org>

4 <http://www.eps.org/activities/education/eps-physics-education-studies>

5 <http://www.bayceer.uni-bayreuth.de/pathway/>

6 http://www.pisa.oecd.org/pages/0,2987,en_32252351_32235731_1_1_1_1_1,00.html

7 <http://www.timss.org/>

8 http://www.dpg-physik.de/static/info/lehramtsstudie_2006.pdf (German)

http://www.dpg-physik.de/veroeffentlichung/broschueren/studien/lehramt-eng_2010.pdf (English)

9 <http://www.ptec.org/webdocs/TaskForce.cfm>

Marisa Michelini (President of GIREP)

Call for manuscript proposals for a new peer-reviewed book on Effective Practices in Pre-service Physics Teacher Education

The Physics Teacher Education Coalition, the American Physical Society, and the American Association of Physics Teachers announce a call for manuscript proposals for a new peer-reviewed book entitled **Effective Practices in Preservice Physics Teacher Education: Recruitment, Retention, and Preparation**. Co-edited by Dr. Eric Brewe and Dr. Cody Sandifer, this book seeks to provide a practical guide to innovative, state-of-the-art programs, and will include papers in the following areas: Recruitment and Retention; Early Teaching Experiences; Preparation in Physics Knowledge, Scientific Practices, and Physics Teaching; The Collaborative Nature of Teacher Preparation; Mentoring and Community-Building; and Case Studies of Successful Preservice Teacher Education Programs.

Manuscript **proposals** are due **February 1, 2013**. **Full manuscripts will be due in September 2013**, and book publication is scheduled for 2015.

For more information, the book editors can be contacted at:

EffectivePracticesBook@aps.org<<mailto:EffectivePracticesBook@aps.org>>.

The full call for manuscript proposals can found at:

<http://www.ptec.org/effectivepracticesbook> .

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"The Hallmark is not how much a teacher covers, it is the amount they uncover."

Please send contributions for next GIREP Newsletter till April 5, 2013!