

<p>GIREP VZW</p> <p>Millegemweg 49</p> <p>2531 Vremde-Boechout</p> <p>Belgium</p>	 <p>GIREP vzw Annual Report 2020</p>	<p>Ondernemingsnummer: 0650.719.451</p> <p>Opgericht 2 januari 2016</p> <p>Rekeningnummer: 735-044033843</p> <p>IBAN BE66 7350 4403 3843</p> <p>BIC KREDBEBB</p> <p>e-mail: girepvzw@gmail.com</p>
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- I. GIREP vzw was registered as a non-profit organization on the 2nd of January 2016 with an office registered in B2531 Vremde (Boechout), Millegemweg 49, judicial district of Antwerp, Belgium.

- II. At the time of registration, the GIREP Board consisted of:
 - A) President: Marisa Michelini (*Via Chiusaforte 46/13 33100 Udine, Italy*)
 - B) Vice-president: Claudia Haagen-Schützenhöfer (*Paulahofsiedlungsstr. 72, 8600 Bruck, Austria*)
 - C) Vice-president: Wim Peeters (*Millegemweg 49, 2531, Boechout, Belgium*)
 - D) Treasurer: Leoš Dvořák (*Súdanská 598/5, Vokovice, 160 00 Praha 6, Czech Republic*)
 - E) Secretary: Dagmara Sokołowska (*ul. Św. Faustyny 37, 32-085 Modlniczka, Poland*)

- III. According to its Statutes (Art. 3, §1) GIREP vzw has the following aims and purposes:
 - A) to promote the enhancement of the quality of the teaching of and learning of physics at all levels and in all contexts.
 - B) to promote research in the field of the teaching of and learning of physics at all levels and in all contexts.
 - C) to support the improvement of the quality of pre-service and in-service professional development of the teaching of and learning of physics at all levels and in all contexts.
 - D) to support and facilitate cooperation between all stakeholders that aim at enhancing the teaching of and learning of physics at all levels and in all contexts.
 - E) to support and facilitate the exchange of information on the subject of the teaching of and learning of physics at all levels and in all contexts.

- IV. The GIREP General Assembly was convened online using Zoom meetings on 8th June 2020 at 14:00 (CET). The minutes of the General Assembly were published in GIREP Newsletter No 63 (p. 3) in June 2020 and distributed among all GIREP vzw members.

- V. In the period 1st January – 31st December 2020 the GIREP Board was convened twelve times for on-line meetings.

Please, note: In the report below two general abbreviations are used: GB meaning GIREP Board and LOC meaning Local Organizing Committee.

Part I GIREP ACTIVITIES 2020

❖ GIREP vzw Board Members

The GIREP vzw Board for the period 1 January to 31 December 2020 consists of six members with the following roles and responsibilities:

- Marisa Michelini, **GIREP President**, University of Udine, Italy
- Dagmara Sokołowska, **GIREP Vice-President** in charge of activities aimed at Universities and research, GIREP Thematic Groups (GTG), Jagiellonian University, Krakow, Poland
- Wim Peeters, **GIREP Vice-President** in charge of activities aimed at teachers and Legal Officer, PONTOn vzw, Flanders, Belgium
- Eilish McLoughlin, **GIREP General Secretary** and Newsletter Editor, Dublin City University, Ireland
- Claudio Fazio, **GIREP Treasurer** and Media Officer, University of Palermo, Italy
- Paul Logman, **GIREP Board Member** in charge of GIREP Members and Public Relations, Leiden University, Netherlands

❖ GIREP Membership 2020

GIREP had 107 full registered members as of 31/12/2020.

❖ GIREP Calendar of meetings.

A total of 12 meetings were held by the GIREP Board over 2020 and all six Board members attended

20 th January	GIREP Board Meeting. (On-line)
19 th February	GIREP Board Meeting. (On-line)
18 th March	GIREP Board Meeting. (On-line)
22 nd April	GIREP Board Meeting. (On-line)
12 th May	GIREP Board Meeting. (On-line)
3 rd June	GIREP Board Meeting. (On-line)
8 th June	GIREP General Assembly. (On-line)
30 th June	GIREP Board Meeting. (On-line)
10 th September	GIREP Board Meeting. (On-line)
8 th October	GIREP Board Meeting. (On-line)
12 th November	GIREP Board Meeting. (On-line)
16 th -18 th November	GIREP Webinar 2020. (On-line)
14 th December	GIREP Board Meeting. (On-line)

❖ Overview of GIREP Activities 2020

- Introductions and agreement on GIREP Board members roles and responsibilities (2020-2023).
- Updating and agreement of GIREP vzw new Statutes.
- Development of new GIREP website and social media Channels
- Preparation of post conference publications from GIREP-ICPE-EPEC-MPTL 2019 Conference.
- Preparation for first online GIREP General Assembly on 8th June 2020.
- Organization and planning speakers and programme for
 - GIREP-MPTL-EPS-PED webinar 16-18 November 2020.
 - 3rd World Conference on Physics Education in Hanoi in December 2021.
- Development of GIREP Thematic Groups and Communities.
- GIREP vzw cooperation with eleven partner organizations on the basis of signed agreements and with two other organizations without a signed agreement.
- Involvement of GIREP national representatives.
- GIREP agreements with Springer and IOP Journal of Conference Proceedings.
- Preparation of two newsletters (available at: ISSN 2307-0366).

Part II Report of GIREP Webinar 2020

The Malta Webinar 2020 was organized by the International Research Group on Physics Teaching – GIREP [Groupe International de Recherche sur l’Enseignement de la Physique] and the University of Malta, Faculty of Education, Department of Mathematics and Science Education and Faculty of Science, Department of Physics, with the cooperation of the European Physics Society – Physics Education Division [EPS-PED] and Multimedia in Physics Teaching and Learning [MPTL]. The GIREP 2020 Malta Webinar was dedicated to **Professor Lilian Mc Dermott [1931 - 2020]**, an outstanding academic, physics educator and researcher.

The 2020 Webinar was held between the 16th and the 18th November from 22:00pm-5:00pm daily. The online format offered the opportunity for physics educators worldwide to share their knowledge and experiences. The theme of the webinar was “Physics Teacher Education – what matters? The webinar attracted a lot of interest with more than 200 registered participants from all over the world. The full programme of the webinar and the parallel sessions can be found on: <https://www.um.edu.mt/events/girep/GIREPWEBINAR2020/webinarprogramme>

Two invited speakers presented their keynote lectures to the participants of the webinar:

- Prof. Dr. David Sokoloff, Department of Physics, University of Oregon, USA whose keynote was entitled ‘Exploring Multimedia to Adapt Interactive Lecture Demonstrations (ILDs) for Home Use’.
- Prof. Chandrekha Singh, University of Pittsburgh, whose keynote focussed on ‘Using research-validated learning tools to help students with the conceptual knots and learning difficulties in quantum mechanics’.

The webinar consisted of six Working Groups working in parallel sessions which were coordinated by WG leaders - academics who are experts in the specific areas of study and research. Participants shared and discussed presentations in parallel sessions on themes related to working group topics. A total of 93 abstracts were submitted for this webinar but during the webinar, a total of 86 presentations were delivered as some abstracts were not accepted. The themes were discussed for around 6 hours in 7 breakout rooms each having 3 workgroup leaders. The number of presentations per theme are shown in the last column of the table below.

[i] ICT and Multimedia in Teacher Education (Initial and Further PD).	Workgroup Leaders: Peter Demkanin, Ton Ellermeijer, Lars-Jochen Thoms	11
[ii] Experiments and lab work in teacher education.	Workgroup Leaders: Ian Bearden, Leoš Dvorák, Gorazd Planinšič	13
[iii] Quantum Mechanics in Teaching and learning physics.	Workgroup Leaders: Sergej Faletic, Marisa Michelini, Gesche Pospiech	16
[iv] Formal, non-formal and informal aspects physics education at primary level.	Workgroup Leaders: Mojca Cepic, Marco Gilberti, Dagmara Sokolowska	11
[v] Strategies for pre-service physics teacher education at all levels.	Workgroup Leaders: Dina Curso, Claudio Fazio, Zuzana Jeskovsa	10
[vi] In-service teacher professional learning strategies.	Workgroup Leaders: Eilish McLoughlin, Wim Peeters, David Sands, Jenaro Guisasola	25

The webinar provided an opportunity to recognize outstanding individuals in Physics Education. This year, Prof David Sokoloff [Oregon University, USA] was presented with the 2020 GIREP medal by the President of GIREP, Prof Marisa Michelini. Prior to presenting the medal, Prof Michelini invited Dr Eilish McLoughlin, GIREP Secretary, to briefly summarise Prof Sokoloff's contribution to Physics Education. Following the presentation of the medal, Prof Sokoloff delivered his keynote speech.

The webinar provided a second opportunity to recognize the outstanding contribution of a distinguished personality to the sphere of Education – Hon Luigi Berlinguer. Prior to presenting to Hon Berlinguer with Anniversary medal, Prof Michelini invited Dr Dagmara Sokolowska, GIREP Vice-President, to briefly summarise Hon Berlinguer's contribution to Education. Following the presentation of the medal, Hon Berlinguer delivered his reflections on the invaluable worth of education in today's world, to the GIREP participants.

Part III GIREP vzw cooperation with other organizations 2020

GIREP vzw cooperation with other organizations takes various forms:

- joint organization of conferences
- participation in conferences organized by cooperating bodies
- joint initiatives on development of physics education research and promotion of physics education
- mutual announcements and reports in each other's newsletters
- organization of special meetings for cooperating bodies during conferences

During 2020, GIREP collaboration with many organizations has been continued:

- on the basis of a signed agreement:
 - American Association of Physics Teachers (AAPT)
 - American Physical Society (APS)
 - Conferencias Inter-Americanas sobre Educación en Física (CIAEF)
 - European Physics Society – Physics Education Division (EPS – PED)
 - Inter-American Conference on Physics Education (IACPE)
 - International Society of Educational Research (ISER)
 - Multimedia in Physics Teaching and Learning (MPTL)
 - Latin-American Physics Education Network (LAPEN)
 - the International Association of Physics Students (IAPS)
 - The Physics Education Society Japan (PESJ)
 - DS Kothari Centre for research and Innovation in Science Education, Miranda House, University of Delhi, India
- without a signed agreement:
 - European Science Education Research Association (ESERA)
 - International Conference on Physics Education (ICPE)

Part IV GIREP GTGs and Communities 2020

Nine GIREP Thematic Groups (GTG) and one GIREP community were active during 2020. A GTG/Community consists 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 leader(s) of the GTG/Community takes responsibility for involving and organising the participation of GTG/Community topics in each Conference or Seminar of GIREP. The list of GIREP GTG/Communities for 2020 were:

GTG on Energy	Group Leader: Paula Heron (University of Washington, USA) Contact: pheron@phys.washington.edu
GTG Innovative Pedagogical Methods for University Physics	Group Leaders: Gerald Feldman, George Washington University, USA & Guillaume Schiltz, ETH Zürich, Switzerland Contacts: feldman@gwu.edu, schiltz@phys.ethz.ch
GTG Laboratory Based Teaching in Physics	Group Leaders: Ian Bearden, Neils Bohr Institute University of Copenhagen, Denmark Contacts: bearden@nbi.ku.dk
GTG Mathematics in Physics Education	Group Leader: Gesche Pospiech (Technische Universität Dresden, Germany) Contact: gesche.pospiech@tu-dresden.de
GTG Physics and Society	Group Leader: Dr. Aristotelis (Telis) Gkiolmas, University of Athens, Greece Contact: agkiolm@primedu.uoa.gr
GTG Physics Education Research at University (PERU)	Group Leader: Jenaro Guisasola (University of the Basque Country, Spain) Contact: jenaro.guisasola@ehu.es
GTG Physics Preparation of Teachers in Grades K-6	Group Leaders: Stamatis Vokos, California Polytechnic State University-San Luis Obispo, USA & Federico Corni, Libera Università di Bolzano, Italy Contacts: svokos@calpoly.edu, Federico.Corni@unibz.it
GTG Strategies for Active Learning (SAL)	Group Leader: Claudio Fazio, University of Palermo, Italy Contact: claudio.fazio@unipa.it
GTG TPACK in Physics Teacher Education	Group Leader: M. Fatih Taşar, Gazi Üniversitesi Contact: mftasar@gazi.edu.tr
GIREP Community on Teaching/Learning Quantum Physics	Group Leader: Marisa Michelini, University of Udine, Italy Contact: marisa.michelini@uniud.it

Part V Minutes of the GIREP General Assembly 2020

The GIREP vzw General Assembly was held online using Zoom meetings on 8th June 2020 at 14:00 (CET) and the convocation was held in accordance with the statutes of the GIREP Organization, "Section 3. The extraordinary general meeting. Art. 9:21. The general meeting may decide on amendments to the articles of association validly deliberate and decide only if the proposed changes are precisely indicated in the notice and when at least two thirds of the members at the meeting be present or represented. If the latter condition is not met, a second convening notice shall be required and the new meeting shall deliberate and decide in a valid manner, irrespective of the number of persons present or represented members. The second meeting may not be held within fifteen days following the first meeting. An amendment shall only be adopted if it is two thirds of the votes cast with neither abstentions nor are not included in the numerator or the denominator. However, if the amendment of the articles of association relates to the object or the disinterested purpose of the association, it is only then assumed, when it has four fifths of the votes cast obtained, with abstentions neither in the numerator nor in the denominator will be counted". Members were advised in that in accordance with of GIREP Statutes Art7, Par3, "Members may be represented at the GA by another member by written proxy."

Altogether 50 GIREP members were present online including the six members of the GIREP Board (GB). No member had requested to be represented by proxy at this meeting.

The convocation was held in two parts:

□ PART A. The GIREP Extraordinary General Assembly

GIREP Vice President Wim Peeters presented the GIREP vzw new Statutes and outlined amendments made to Articles 3-8. The following link was provided to all members to access the document online: https://girep.org/media/2020_GIREP_newStat_2020520.pdf. GIREP President Professor Marisa Michelin invited participants to vote to approve the new GIREP vzw Statutes.

- ❖ Outcome of Voting: 46 pro votes pro, 0 counter votes, 4 abstained votes.

□ PART B. The GIREP General Assembly

Agenda:

1. Approval of new GIREP Board
2. Endorsement of the division of tasks among elected members of the GIREP Board.
3. Approval of the minutes of the GIREP vzw General Assembly 2019.
4. Approval of the GIREP vzw Annual Report 2019.
 - a. GIREP vzw activities 2019
 - b. Financial report 2019 and provisional financial budget 2020.
 - c. Auditor's report 2019
5. Discharge of GIREP Board.
6. Approval of the GIREP Handbook of Internal Regulations.
7. Activities in 2020 and in the further future:
 - a. GIREP Books
 - b. 3rd WCPE 2021 and GIREP Seminar 2020 in Malta
 - c. GTG activities
 - d. Others
8. Activities proposals by GIREP members.
9. Proposals for cooperation with GIREP vzw.
10. Varia

The General Assembly started with GIREP President Professor Marisa Michelini presenting the new GIREP board members and (2020-2023) and invited participants to vote to approve the new GIREP Board.

- ❖ Outcome of Voting: 46 pro votes pro, 0 counter votes, 4 abstained votes.

GIREP President Professor Marisa Michelini then presented the tasks of the six board members and asked for the endorsement of the division of tasks among elected members of the GIREP Board.

GIREP Vice-President Dagmara Sokołowska presented the minutes of the 2019 GIREP vzw General Assembly and members were asked to vote to approve the GA 2019 minutes.

- ❖ Outcome of Voting: 44 pro votes pro, 0 counter votes, 6 abstained votes.

Subsequently, Dagmara Sokołowska presented an annual report on 2019 GIREP Board activities. She reported that eight GIREP vzw Board on-line meetings and two face-to-face meetings were held in 2019, and informed about the main discussed issues, concerning:

- Organization of GIREP vzw Elections of the GIREP Board members for term 2020-2023.
- Development of eight GIREP Thematic Groups and contributions to GIREP-ICPE-EPEC-MPTL Conference 2019.
- Organization and planning of the 3rd World Conference on Physics Education 2020 in Hanoi.
- Organization and planning of GIREP-MPTL seminar 2020 in Malta.
- Consideration of proposals for GIREP conference in 2021.
- GIREP vzw cooperation with eleven partner organizations on the basis of signed agreements and with two other organizations without a signed agreement.
- GIREP representation in ESERA Conference 2019 in Bologna.
- Involvement of GIREP national representatives.
- GIREP Books published by Springer
 - Concepts, Strategies and Models to Enhance Physics Teaching and Learning (eds. E. McLoughlin and P. van Kampen)
 - Mathematics in Physics Education (eds. G. Pospiech, M. Michelini and B. Eylon).
- GIREP Conference Proceedings published by IOP:
 - GIREP-ICPE-EPEC 2017 Conference and GIREP-MPTL 2018 Conference.
- Communication via GIREP website (www.girep.org) and newsletters (available at: ISSN 2307-0366)

Next the GIREP vzw Treasurer, Claudio Fazio presented the GIREP vzw Financial Report for 2019 and Ton Ellermeijer, the GIREP vzw Auditor, presented the 2019 Auditor Report. The three annual reports had been made available online and sent as a link to all GIREP members on the 23rd of May 2020.

https://girep.org/media/2020_GIREP_vzw_Annual_Report_2019.pdf

https://girep.org/media/2020_GIREP_vzw_Financial_Report_2019.pdf

https://girep.org/media/2020_GIREP_vzw_Auditor_Report_2019.pdf

After clarifications and comments the GIREP vzw Annual Report 2019, including GIREP activities, GIREP Financial Report 2019 and provisional Budget for 2020, was approved in voting.

- ❖ Outcome of Voting: 41 pro votes pro, 0 counter votes, 9 abstained votes.

After which discharge of the Board was discharged was approved in voting

- ❖ Outcome of Voting: 36 pro votes pro, 0 counter votes, 14 abstained votes.

GIREP Vice-President Wim Peeters presented the GIREP Handbook of Internal Regulations. This document describes all daily and changeable activities and processes within the GIREP organization and is constantly available online at http://girep.org/media/2020_GIREP_Handbook_Internal_Regulations.pdf. The GIREP Handbook of Internal Regulations was approved in voting.

- ❖ Outcome of Voting: 35 pro votes pro, 0 counter votes, 15 abstained votes.

GIREP President Professor Marisa Michelini presented on GIREP Activities in 2020 and in the further future. Professor Michelini reminded that there was free access for all GIREP members to GIREP books already published by Springer, namely *The Role of Laboratory Work in Improving Physics Teaching and Learning* (eds. D. Sokołowska and M. Michelini) and *Upgrading Physics Education to Meet the Needs of Society* (ed. P. Pinto de Olivera), *Concepts, Strategies and Models to Enhance Physics Teaching and Learning* (eds. E. McLoughlin, P. van Kampen), *Mathematics in Physics Education* (eds. G. Pospiech, M. Michelini and B. Eylon). She also reported that two other GIREP books were in production with Springer, namely *Research and Innovation in Physics Education: Two Sides of the Same Coin* (eds. J. Guisasola and K. Zuza) and *Teaching-learning contemporary physics, from research to practice* (eds. C. Sükösd and B. Jarosievitz).

Professor Michelini informed members about the publication of online proceedings from GIREP Conferences/Seminars had been published by the Institute of Physics for the 2016 GIREP Seminar in Krakow, *Research-based proposals for improving teaching and learning – focus on laboratory work* (ed. D. Sokolowska), 2017 GIREP-ICPE-EPEC Conference *Bridging Research and Practice in Physics Teaching and Learning* Conference in Dublin (eds. E. McLoughlin, P. van Kampen) and the 2018 GIREP-MPTL Conference in San Sebastian, *Research and Innovation in Physics Education: Two Sides of the Same Coin* (eds. J. Guisasola and K. Zuza). She also reported that the online proceedings of the 2019 GIREP-ICPE-EPEC-MPTL Conference in Budapest, *Teaching-learning contemporary physics, from research to practice*, (eds. C. Sükösd and B. Jarosievitz) was at the stage of advanced review process.

Professor Michelini shared details of the new dates for the 3rd WCPE Conference (19-23 July 2021) and presented an overview of the scientific program, keynote speakers and deadlines for submissions. Details are available on the website <http://wcpe2020.hnue.edu.vn/>

Professor Michelini shared details of the new structure and dates for the GIREP 2020 Seminar 2020 to be held as an on online webinar (16-18 November 2020) and organised by colleagues from the University of Malta. Details are available on the website: <https://www.um.edu.mt/events/girep> The theme of the webinar is “Physics Teacher Education – What Matters?” and will consist of a 3-day online programme with a keynote speaker and working group discussions on six topics:

- I. ICT and Multimedia in Teacher Education (Initial and Further PD)
- II. Experiments and lab work in teacher education
- III. Quantum Mechanics in teaching and learning physics
- IV. Formal, non-formal and informal aspects of physics education at primary level
- V. Strategies for pre-service teacher education at all levels
- VI. In-service teacher professional learning strategies

GIREP Vice-President Dagmara Sokołowska presented the eight GIREP Thematic Groups (GTG) and gave an overview of their activities at the GIREP-ICPE-EPEC-MPTL Conference 2019 in Budapest. She also presented an overview of the newly formed GIREP Community on Teaching/Learning Quantum Physics and the successful symposium organized at the GIREP-ICPE-EPEC-MPTL Conference 2019.

In the last part of the General Assembly Professor Michelini raised the idea of a wider publication of GIREP conference papers in peer-reviewed journals. Professor Michelini summarized cooperation with other international organizations and GIREP members were asked to highlight activities or items of interest to GIREP members.

- Mojca Cepic made a suggestion that for the next General Assembly the first convocation should be called online 14 days before the GIREP conference.
- Jenaro Guisasola provided an update that the Springer Book *Research and Innovation in Physics Education: Two Sides of the Same Coin* (eds. J. Guisasola and K. Zuza) was expected to be published in August 2020.
- Alicja Wojtyna-Jodko informed members that Prof. Joseph DEPIREUX, one of the former GIREP Vice-Presidents, died on the 9th of April 202 and reminded members of his efforts toward popularizing the idea of “Teaching modern physics” and his active role in The (Polish) Association of Teachers of Natural Sciences and Technology (SNPPiT).
- Fatih Tasar made a proposal for a new Girep Thematic Group on Contributions of History & Philosophy of Physics in Physics Education and made an open call for interested colleagues to contact him.
- Aristotelis Gkiolmas informed members that there is a contract with a publishing house about a collective volume entitled “Teaching Physics through History of Science and Historical Experiments” and made an open call for interested colleagues to contact him.
- Ian Bearden made a proposal for a new Girep Thematic Group on Laboratory Based Teaching in Physics and offered himself as a candidate to organise this group and made an open call for interested colleagues to contact him.
- Jenaro Guisasola added support for this idea to meet the needs of this growing community to have an additional journal in addition to European Journal of Physics, American Journal of Physics and Physical Review Physics Education Research.
- Sascha Scheling informed members of an open access journal called Progress in Science Education (PriSE) which aims to stimulate exchange between researchers, teachers, and other stakeholders in the field, available at <https://e-publishing.cern.ch/index.php/prise>
- Dan Cottle mentioned the IoP journal, Physics Education <https://iopscience.iop.org/journal/0031-9120>
- Gary Williams mentioned that Physics Education is more PCK and less PER at the moment but the focus could be changed.
- Fatih Tasar shared a link to the Public Knowledge Project, a multi-university initiative developing (free) open source software and conducting research to improve the quality and reach of scholarly publishing and shared a link to Open Preprint Systems <https://pkp.sfu.ca/ocs/>
- Barbara Rovšek mentioned that there was special thematic editions at European Journal of Phys and the possibility that there could be one devoted to PED.
- Ian Bearden mentioned that he would welcome greater cooperation between GIREP and EPS as he has recently been elected to the executive of the European Physical Society.

Gerald Feldman informed members about a proposal that he and Paul Logman had made for a week long summer school for young faculty in physics education that had not been successfully funded for 2020.