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Preface

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GIREP-MPTL 2018





Proceedings



GIREP-MPTL 2018
9th-13th July, 2018
San Sebastian, Spain

**Research and innovation in physics education:
two sides of the same coin.**

Organized by:
International Research Group on Physics Teaching (GIREP)
Multimedia in Physics Teaching and Learning (MPTL)
Donostia Physics Educational Research Group
of the University of the Basque Country – UPV/EHU

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Preface

The GIREP-MPTL 2018 Conference combines the efforts and interests of two communities, researchers in physics education and physics teachers. It presents a broad field of research and innovation that ranges from basic research to innovations in classroom teaching. The research and proposals include different educational levels from Primary to University.

The proceedings present selected contributions from the Conference, organized by the organization GIREP and Multimedia in Physics Teaching and Learning and Donostia Physics Education Research Group of the University of the Basque Country. This event offered the opportunity to fruitfully exchange on their experience and ideas and share the latest information on Physics Education. The Conference was sponsored by Real Sociedad Española de Física, European Physics Society-Physics Education Division (EPS- PED), City Hall of San Sebastian, Provincial Council of Guipuzcoa and International Conference on Physics Education (ICPE) of the Commission C14 of the International Union of Pure and Applied Physics (IUPAP). The Conference organizers gratefully appreciate the patronage received from the Department of Education of the Basque Government for this conference.

The Conference was attended by 282 participants representing 41 countries. Altogether, there were 181 oral presentations, 49 poster presentations, 10 workshops, 6 plenary, 2 plenary dialogues, 5 Girep Thematic Group contributions, across the seven conference topics:

- 1) Physics teaching and learning at Primary and Secondary Education
- 2) Physics teaching and learning at University
- 3) Preservice and in-service physics teachers' education
- 4) Physics education in non-formal setting
- 5) Physics into STEM teaching and learning
- 6) ICT and multimedia in physics education
- 7) Nature of Science, gender and socio-cultural issues in physics education

The Conference presents for first time in the GIREP events the idea of "Dialogue". It involves two experts with a leader who gives a brief feedback on the subject and proposes to the two experts questions for the discussion. The two invited dialogues were about "Primary, Secondary and University pre-service physics teacher Education" and "The actual and potential impact of physics education research in students' learning". The second and third day of the Conference were dedicated to celebrating the teachers of physics.

The organization of the Conference would not have been possible without the help of many people. In particular, we would like to thank Prof. Marisa Michelini, President of GIREP, for her constant support. We thank the members of the Local Organizing Committee and the reviewers for their dedication and commitment to this event, without them the proven quality of the contributions would not have been possible. We hope that these proceedings provide the reader with a contemporary vision of the teaching and learning process of physics

San Sebastian, Spain

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