

Program

Keynotes

Keynote K1 30 st August, Tuesday, Lecture Hall (PAU)		
13:45 - 14:45	Ł. Turski	<i>Teaching physics in XXI century. Why and How</i>
Keynote K2 31 st August, Wednesday, room A-1-06		
9:00 - 10:00	M. Euler	<i>Empowering the engines of knowledge and creativity: Learning from experiments in theory and practice</i>
Keynote K3 31 st August, Wednesday, room A-1-06		
12:30 - 13:30	M. Michelini	<i>Labs to build modern physics way of thinking</i>
Keynote K4 31 st August, Wednesday, room A-1-06		
16:30 - 17:30	W. Christian	<i>The Impact and Promise of Open-Source Computational Material for Physics Teaching</i>
Keynote K5 1 st September, Thursday, room A-1-06		
9:00 - 10:00	D. Sokoloff	<i>Research Validated Distance Learning Labs for Introductory Physics Using IOLab</i>
Keynote K6 1 st September, Thursday, room A-1-06		
15:30 - 16:30	C. Constantinou	<i>Approaches to formative assessment for learning in Physics</i>

Oral presentations

WG1

Experimental Lab in Introductory Physics Courses

31st August, Wednesday, room A-1-06

WG1 leaders: Jenaro Guisasola, Dean Zollman

WG1 - OP1A		
10:00 - 10:20	Dean Zollman	<i>Enhancing student learning in introductory physics labs</i>
10:20 - 10:40	Claudia Haagen-Schützenhöfer	<i>Integrating NOS in lab work</i>
10:40 - 11:00	Tabitha Dreef	<i>Physics laboratory work: objectives and how to realize them</i>
WG1 - OP1B		
11:30 - 11:50	Paul van Kampen	<i>Revisiting first year undergraduate physics labs</i>
11:50 - 12:10	Ales Mohoric	<i>European comparison of the training and supply of physics school teachers</i>
12:10 - 12:30	Wouter Spaan	<i>Teacher's design and implementation of practical work</i>
WG1 - OP1C		
14:30 - 14:50	Mieke De Cock	<i>Classroom activities to support student understanding of the concept of emf</i>
14:50 - 15:10	Laurens Bollen	<i>Design and implementation of research-based learning materials about vector calculus in electro-dynamics</i>
15:10 - 15:30	Victor Antwi	<i>Understanding kinematics graphs using MBL, simulations and graph samples in an interactive engagement context in a Ghanaian University</i>
15:30 - 15:50	Pieter Coppens	<i>A black box laboratory in electronics</i>

Oral presentations

WG2

Modern Physics and Advanced Labs

31st August, Wednesday, room A-1-08

WG2 leaders: David Sands, Federico Corni

WG2 - OP2A		
10:00 - 10:20	David Sands	<i>The value of solving experimental problems in groups</i>
10:20 - 10:40	Gerrit Kuik	<i>Advanced lab experiments linking undergraduate labs and research</i>
10:40 - 11:00	David Fokkema	<i>An advanced lab experiment: optical coherence tomography</i>
WG2 - OP2B		
11:30 - 11:50	Federico Corni	<i>Didactical activities about the basic phenomena of Rutherford backscattering spectrometry</i>
11:50 - 12:10	Massimiliano Malgieri	<i>Assessing student's conceptual understanding in a laboratory on the measurement of the Planck constant</i>
12:10 - 12:30	Julia Woithe	<i>Hands-on particle physics experiments for high-school students at S'Cool LAB / CERN</i>
WG2 - OP2C		
14:30 - 14:50	Ad Mooldijk	<i>Ionising radiation experiments in secondary education</i>
14:50 - 15:10	Leonidas Manou	<i>Content transformation of nanoscale science and engineering for educating primary teachers</i>
15:10 - 15:30	Yaron Lehavi	<i>Consolidating the concept of energy through a multiple-perspectives curriculum design</i>
15:30 - 15:50	Zoltán Csernovszky	<i>Motion types of a compass in different magnetic fields</i>

Oral presentations

WG4

Conceptual Lab and Mathematization

31st August, Wednesday, room A-1-03

WG4 leaders: Alberto Stefanel, Gesche Pospiech

WG4 - OP4A		
10:00 - 10:20	Stijn Ceuppens	<i>Students' representational fluency in linear function problems in physics and mathematics: Does stem integration help?</i>
10:20 - 10:40	Jan Sermeus	<i>Conceptual understanding of scientific ideas through dialogue and experiment</i>
10:40 - 11:00	Alberto Stefanel	<i>Conceptual Lab of Operative Exploration (CLOE) as research context to explore pupils reasoning in physics</i>
WG4 - OP4B		
11:30 - 11:50	Michele D'Anna	<i>Addressing some common difficulties in teaching and learning energy in high school</i>
11:50 - 12:10	Zofia Gołąb-Meyer	<i>Persisting errors and cognitive obstacles in pupil's experiments</i>
12:10 - 12:30	Şule Kösem	<i>Thought experiments to design hands on physics experiments</i>
WG4 - OP4C		
14:30 - 14:50	Gesche Pospiech	<i>Mathematics, metaphors and experiments in teaching quantum physics</i>
14:50 - 15:10	Brigitte Wolny	<i>PCK for introductory mechanics - pre-service teachers in a conceptual lab</i>
15:10 - 15:30	Kristina Zuza	<i>Conceptual and exploratory labs for secondary teacher education in two different countries. The case of DC circuits</i>

Oral presentations

WG3

Lab work and Multimedia

1st September, Thursday, room A-1-06

WG3 leaders: Andreas Müller, Ton Ellermeijer

WG3 - OP3A		
10:00 - 10:20	Ed van den Berg	<i>From cookbook to inquiry, improving laboratory teaching with the laboratory activities inventory</i>
10:20 - 10:40	Veronika Timková	<i>Computer modelling in physics teaching</i>
10:40 - 11:00	Tomasz Greczyło	<i>Multimedia in journals for teachers – case of Poland</i>
WG3 - OP3B		
11:30 - 11:50	Anastasios Molohidis	<i>Training pre-service science teachers to develop inquiry based activities</i>
11:50 - 12:10	Lars-Jochen Thoms	<i>The role of information in inquiry-based learning in a remote lab on optical spectrometry</i>
12:10 - 12:30	Robert Teese	<i>Web-based interactive video activities for undergraduate advanced laboratories</i>
12:30 - 12:50	Luis de la Torre	<i>Air levitation system for physics teaching</i>
12:50 - 13:10	Assunta Bonanno	<i>Fluids behaviour in low gravity: a physics education experience within a young apprenticeship programme</i>
13:10 - 13:30	Beata Jarosievitz	<i>Enjoy physics classes with your own devices</i>
WG3 - OP3C		
14:30 - 14:50	Angela Oswald	<i>Smartphones as measuring instruments in the physics classroom. What do students think?</i>
14:50 - 15:10	Gerhard Rath	<i>Elementary optic labs with smartphones</i>

Oral presentations

WG5

Assessment for Learning Through Experimentation

1st September, Thursday, room A-1-04

WG5 leaders: Costas Constantinou, Yaron Lehavi

WG5 - OP5A		
10:00 - 10:20	Jaap Buning	<i>Lab work assessment</i>
10:20 - 10:40	Mojca Čepič	<i>Inquiry based learning of modern research topics and gifted students</i>
10:40 - 11:00	Eilish McLoughlin	<i>Assessing pre-service teachers learning with laboratory-based physics activities</i>
WG5 - OP5B		
11:30 - 11:50	Sergej Faletič	<i>Project laboratory made easier and more efficient by the use of rubrics</i>
11:50 - 12:10	Zuzana Jeskova	<i>Assessing inquiry skills of upper secondary school students</i>
12:10 - 12:30	Katarína Krišková	<i>The development and pilot testing of the measurement tool of skills level development in the lower secondary physics classroom</i>
12:30 - 12:50	Brigita Balogová	<i>Impact of inquiry activities in physics teaching on the level of students' inquiry skills</i>
12:50 - 13:10	Marián Kireš	<i>The analysis of conceptual understanding and selected inquiry skills of students within non-formal education activities in science centre</i>
13:10 - 13:30	Cesar Mora	<i>Experimental prototypes for teaching rotational movement for engineering students</i>
WG5 - OP5C		
14:30 - 14:50	Daniel Dziob	<i>Introducing a class tournament as an assessment method of student achievements in physics courses</i>
14:50 - 15:10	Barbara Rovšek	<i>Assessment of experimental work in science competition</i>

Oral presentations

WG6

Low Cost Experiments and Inquiry

1st September, Thursday, room A-1-03

WG6 leaders: Pratibha Jolly, Dagmara Sokołowska

WG6 - OP6A		
10:00 - 10:20	Marina Castells Llavanera	<i>Teacher talk about mental or real experiments: from actions on or with objects, gestures and representations to the abstract physics models</i>
10:20 - 10:40	Francisc Esquembre	<i>The ad-hoc laboratory</i>
10:40 - 11:00	Giovanni Organtini	<i>Arduino as a tool for physics experiments</i>
WG6 - OP6B		
11:30 - 11:50	Tommaso Rosi	<i>Fifty shades of colours</i>
11:50 - 12:10	Marco Zappatore	<i>A non-classical acoustics teaching lab supported by BYOD and inquiry-based learning</i>
12:10 - 12:30	Marco Giliberti	<i>"Light Mystery": a theatre play about IBSE</i>
12:30 - 12:50	Marika Kapanadze	<i>Science teachers' constructs and project chain reaction in Georgia</i>
12:50 - 13:10	Canay Pekbay	<i>Effect of desing based science learning on pre-service science teachers' decision making skill</i>
13:10 - 13:30	Beril Yilmaz Senem	<i>Laboratory activity for energy transformation: Magic box</i>
WG6 - OP6C		
14:30 - 14:50	Dagmara Sokolowska	<i>Effectiveness of learning outcomes through inquiry</i>
14:50 - 15:10	Nataliya Kazachkova	<i>Non-Classical Lab Environment at ECYGDALaboratory</i>

Poster presentations

WG1

Experimental Lab in Introductory Physics Courses

31st August, Wednesday, room A-1-06

WG1 leaders: Jenaro Guisasola, Dean Zollman

WG1 - IP1	
17:30 - 18:30	
Marta Rinaudo	<i>Best practises for a good laboratory experience</i>
Tetyana Antimirova	<i>Video analysis in undergraduate laboratory experiments</i>
Karel Havlíček	<i>Effectivity evaluation of experiments in physics education by memory retention</i>
Irena Dvořáková	<i>Electricity and magnetism step by step and optics step by step: optional special labs in first years of pre-service teacher training</i>
Hiroshi Masuko	<i>Fundamental experiments with simple coils</i>
Sasa Zihelr	<i>Constructing retarders for microwaves</i>
Katarina Susman	<i>Light and colours – creative teaching materials for laboratory work</i>
Cesar Mora	<i>Teaching thermal equilibrium in a bachelors school of Bogota, Colombia, using active learning in physics</i>
Rodolfo Espíndola	<i>What determines the mass?</i>
Overall poster session in a hall, floor 2	
18:30 - 19:15	

Poster presentations

WG2

Modern Physics and Advanced Labs

31st August, Wednesday, room A-1-08

WG2 leaders: David Sands, Federico Corni

WG2 - IP2	
17:30 - 18:30	
Marisa Michelini	<i>Low cost experimental proposal to bridge from classical to modern physics</i>
Agnese Russo	<i>A laboratorial learning sequence to introduce modern physics in high-school</i>
Piet Blankert	<i>Introducing modern physics into high school through remote labs</i>
Francesca Santonocito	<i>From LED Light Signboards to the Planck's constant</i>
Federico Corni	<i>The energy principle in a model of electric braking of a flywheel</i>
Jan Mulder	<i>Electronics and signal processing for undergraduate students</i>
Overall poster session in a hall, floor 2	
18:30 - 19:15	

Poster presentations

WG3

Lab work and Multimedia

31st August, Wednesday, room A-0-13

WG3 leaders: Andreas Müller, Ton Ellermeijer

WG3 - IP3	
17:30 - 18:30	
Ian Lawrence	<i>Using code to generate representations to reason with</i>
Dominique Persano Adorno	<i>The open discovery of STEM Laboratories (ODL) project</i>
Petr Kacovsky	<i>Electronic collection of physics experiments</i>
Marisa Michelini	<i>From one slit to diffraction grating: optical physics lab by means of computer on-line sensors.</i>
Tommaso Rosi	<i>Discovering some intriguing and fundamental aspects of quantum physics through visualizations of the hydrogen atom</i>
Antonio Amoroso	<i>Study of oscillatory motion using smartphone and Tracker software</i>
Overall poster session in a hall, floor 2	
18:30 - 19:15	

Poster presentations

WG4

Conceptual Lab and Mathematization

31st August, Wednesday, room A-1-03

WG4 leaders: Alberto Stefanel, Gesche Pospiech

WG4 - IP4	
17:30 - 18:30	
Marie Snetinova	<i>Solving of quantitative physics problems in another way</i>
Jerneja Pavlin	<i>The triplet relationship in science concepts representations and problem solving</i>
Alberto Stefanel	<i>Operative construction of the concept of energy in a vertical perspective in conceptual labs</i>
Michele D'Anna	<i>Modeling mechanical, magnetic and thermal processes in high school lab activities: an experiment with a rotating disc</i>
Lukáš Richterek	<i>Mathematical analysis of the laboratory data in the introductory physics course</i>
Mario Humberto Ramírez Díaz	<i>Identification and classification of misconceptions in solving a variant for the two-body problem</i>
Stijn Ceuppens	<i>Integrated stem teaching and learning materials in optics: development, implementation and teacher feedback</i>
Věra Koudelková	<i>Teaching-learning sequences using low-cost experiments aimed at understanding of concepts of electricity</i>
Overall poster session in a hall, floor 2	
18:30 - 19:15	

Poster presentations

WG5

Assessment for Learning Through Experimentation

31st August, Wednesday, room A-0-11

WG5 leaders: Costas Constantinou, Yaron Lehavi

WG5 - IP5	
17:30 - 18:30	
Eilish McLoughlin	<i>Assessment as part of the learning process of pre-service physics teachers</i>
Francesca Monti	<i>Laboratory for teacher education based on ICT: the case of thermal phenomena</i>
Dominique Persano Adorno	<i>A quantitative analysis of University student reasoning lines in the field of thermally activated phenomena</i>
Daniel Dziob	<i>Teaching hydrostatics through an outdoor game based on experiments</i>
Overall poster session in a hall, floor 2	
18:30 - 19:15	

Poster presentations

WG6

Low Cost Experiments and Inquiry

31st August, Wednesday, room A-0-15

WG6 leaders: Pratibha Jolly, Dagmara Sokołowska

WG6 - IP6	
17:30 - 18:30	
Justyna Nowak	<i>The role of simple experiments in understanding different phenomena - Firefly contest of science.</i>
Zdeněk Šabatka	<i>Educational Laboratory at University – a place for teaching both high school students and future teachers</i>
Uliana Nyemchenko	<i>Developing a database of experiments from house hold stuff for using at physics lessons</i>
Marika Kapanadze	<i>Teacher education and low cost experiments by Tempus Project League</i>
Karel Kolář	<i>Experimental Problems at FYKOS</i>
Katarina Susman	<i>Didactic games in science - designing and learning</i>
Jerneja Pavlin	<i>Learning physics through hands-on experiments with hydrogels</i>
Sasa Ziherl	<i>Green heating through IBSE</i>
Brigitte Wolny	<i>Low cost 2D-hover puck</i>
Overall poster session in a hall, floor 2	
18:30 - 19:15	