Monday, 6 July 2015

when	what	where
9:00 – 12:30	Conference registration	Hall – second floor
12:30 – 13:15	Opening ceremony	CHRYSLER AB – second floor
13:15 – 14:00	GIREP Medal talk **Lillian Mc Dermott**	CHRYSLER AB – second floor
14:00 – 15:00	Lunch	Hotel restaurant
15:00 – 16:30	**Knut Neumann** – *general talk I* Structure and development of students' competence in physics	CHRYSLER AB – second floor
16:30 – 17:00	GIREP national representatives meeting	Open space – first floor
17:30 – 19:00	Welcome reception	Open space – first floor

Tuesday, 7 July 2015

when	what	where
9:00 – 10:15	**Mojca Čepič** – *general talk II* Introduction of current scientific results to education: Experiences from the case of liquid crystals	CHRYSLER AB – second floor
10:15 – 10:30	Coffee break	Open space – second floor
10:30 – 12:00	**Parallel session I**	
	Oral session A	CHRYSLER A – second floor
	Oral session B	CHRYSLER B – second floor
	Workshop A	JAGUAR A – second floor

Oral session A – *chairperson*: **Gerhard Rath** CHRYSLER A – second floor

when	what	who
10:30 – 10:50	iMobile physics: Studying the use of smartphone and tablet-PC as experimental tools	Jochen Kuhn
10:50 – 11:10	Design of web-based virtual labs for enhanced experimental learning	Dimitris Psillos
11:10 – 11:30	A laboratorial learning sequence on momentum/energy transfer based on video-analysis of multiple collisions toys	Sapia Peppino
11:30 – 11:50	Analyzing the conceptions on modeling of engineering undergraduate students: a case study using cluster analysis	Claudio Fazio

Oral session B – *chairperson*: **Gareth Jones** CHRYSLER B – second floor

when	what	who
10:30 – 10:50	Assessment of students' representational coherence ability: A key competence for understanding science experiments	Jochen Scheid
10:50 – 11:10	Testing the concept of force using free text responses	David Sands
11:10 – 11:30	Development and validation of domain-specific critical thinking tests in physics	Mieke de Cock
11:30 – 11:50	Results of the application of formative assessment in kinematics	Andreas Lichtenberger

Workshop A – *leader*: **Mojca Cepic** JAGUAR A – second floor

when	what	who
10:30 – 12:00	A role of liquid crystals in a liquid crystal display	Mojca Čepič

Tuesday, 7 July 2015

when	what	where
12:00 – 12:30	Coffee break	Open space – second floor
12:30 – 14:00	**Parallel session II**	
	EPS Workshop I	CHRYSLER A – second floor
	Oral session C	CHRYSLER B – second floor
	Workshop B	JAGUAR A – second floor

EPS Workshop I – *chairperson*: **David Sand** CHRYSLER A – second floor

when	what	who
12:30 – 12:50		
12:50 – 13:10		
13:10 – 13:30		
13:30 – 13:50		

Oral session C – *chairperson*: **Marisa Michelini** CHRYSLER B – second floor

when	what	who
12:30 – 12:50	An approach to teaching the concepts of quantum mechanics in high school	Sergej Faletic
12:50 – 13:10	Physics teachers and barriers to technology integration in teaching	Mehmet Fatih Taşar
13:10 – 13:30	Training pre-service and in-service secondary school teachers: Analysis of changes in perceptions about QM concepts and NoS view	Dominique Persano-Adorno
13:30 – 13:50	Relationship between pre-service physics teachers' FCI performance and their feedback on FCI results	Kübra Eryurt

Workshop B – *leader*: **Gerhard Rath** JAGUAR A – second floor

when	what	who
12:30 – 14:00	Smartphones in physics teaching	Gerhard Rath

Tuesday, 7 July 2015

when	what	where
14:00 – 15:00	Lunch	Hotel restaurant
15:00 – 16:30	**Parallel session III**	
	EPS Workshop II	CHRYSLER A – second floor
	Oral session D	CHRYSLER B – second floor
	Oral session E	JAGUAR A – second floor
	Workshop C	JAGUAR B – second floor

EPS Workshop II – *chairperson*: **David Sand** CHRYSLER A – second floor

when	what	who
15:00 – 15:20		
15:20 – 15:40		
15:40 – 16:00		
16:00 – 16:20		

Oral session D – *chairperson*: **Claudia Haagen** CHRYSLER B – second floor

when	what	who
15:00 – 15:20	The competence of physics teachers and science popularizers versus the conditions of educational target achievement	Paweł Barczyński
15:20 – 15:40	Comparing traditional pedagogical approaches in science to inquiry based ones: A case study with pre-service primary school teachers	Giuliana Croce
15:40 – 16:00	Integration didactic with exploration applied to teach solar energy	Mario Ramírez
16:00 – 16:20	Mental model steps towards scientific ideas	Joan Borg Marks

Oral session E – *chairperson*: **Leoš Dvořák** JAGUAR A – second floor

when	what	who
15:00 – 15:20	PraKo questionnaire: Theoretically and empirically grounded science lab evaluation	Daniel Rehfeldt
15:20 – 15:40	Design and solution of physics open problems for developing competencies in civil engineering students	Javier Pulgar
15:40 – 16:00	Cultivating and assessing inquiry thinking skills using mobile digital science lab	Ourania Petropoulou
16:00 – 16:20	Effectiveness of peer discussion on concept learning in physics	Clemens Wagner

Workshop C – *leader*: **Maria Dobkowska** JAGUAR B – second floor

when	what	who
15:00 – 16:30	Smartphones - useful and attractive tools in science teaching	Maria Dobkowska

Tuesday, 7 July 2015

when	what	where
16:30 – 17:00	Coffee break	Open space – second floor
17:00 – 18:30	**Parallel session IV**	
	Oral session F	CHRYSLER A – second floor
	Workshop D	CHRYSLER B – second floor
	Workshop E	JAGUAR A – second floor
	Workshop F	JAGUAR B – second floor

Oral session F – *chairperson*: : **Mojca Čepič** CHRYSLER A – second floor

when	what	who
17:00 – 17:20	Hyper-constructivism in teaching physics: Defining social competences	Grzegorz P. Karwasz
17:20 – 17:40	Professionalization through practical training. Application of pedagogical content knowledge within the physics-teaching-leaning lab of the university of Wuerzburg	Susan Fried
17:40 – 18:00	Teachers' believes about subject specific competences and inquiry based learning	Claudia Haagen
18:00 – 18:20		

Workshop D – *leader*: **Vladimír Stanislav** CHRYSLER B – second floor

when	what	who
17:00 – 18:30	You haven't seen radioactivity yet?	Vladimír Stanislav

Workshop E – *leader*: **Cristina Mattone** JAGUAR A – second floor

when	what	who
17:00 – 18:30	An educational kit based on a modular silicon photomultiplier system	Cristina Mattone

Workshop F – *leader*: **Maja Pecar** JAGUAR A – second floor

when	what	who
17:00 – 18:30	The everyday use of polarized light in student's environment and related experiments. Is it really linearly polarized?	Maja Pečar

Wednesday, 8 July 2015

when	what	where
9:00 – 10:15	**Gareth Jones** – *general talk III* Competence and understanding: Delivering physics courses to produce both	CHRYSLER AB – second floor
10:15 – 10:30	Coffee break	Open space – second floor
10:30 – 12:00	**Symposium session**	
	Symposium I	JAGUAR A – second floor
	GTG Symposium II	CHRYSLER A – second floor
	GTG Symposium III	CHRYSLER B – second floor

Symposium I **What is heat?** – *organizer*: **Friedrich Herrmann** JAGUAR A – second floor

when	what	who
10:30 – 10:45	What is heat? – Antologia Calorica	Georg Job
10:45 – 11:00	What is heat? – The wrong question	Friedrich Herrmann
11:00 – 11:15	What is heat? – Lessons from Fourier's analytical theory	Ricardo Karam
11:15 – 11:30	What is heat in today's physics teaching?	Friedrich Herrmann
11:30 – 11:45	What is heat in the opinion of the German Physical Society?	Corrado Agnes
11:45 – 12:00	What is heat? The fictional history of the many times heat was discovered	Michael Pohlig

GTG Symposium II **Problem designs in physics textbooks: What students learn or might learn?**
– *organizer*: **Josip Slisko** CHRYSLER A – second floor

when	What	who
10:30 – 10:45	Evaluating physics textbook problems based on a cognitive hierarchy	Gerald Feldman
10:45 – 11:00	Students' strategies for solving and finding data errors in physics problems with unreasonable results	Alejandro González y Hernández
11:00 – 11:15	Treatment of experiment-related information and experimental problems by university physics textbooks in the topic of electrostatics	Edwin German Garcia
11:15 – 11:30	Dynamic visualizations of multi-body physics problems and scientific reasoning ability: A threshold to understanding	J. Christopher Moore
11:30 – 11:45	Students' performances in evaluating feasibility of two physics textbook problems containing careless and intentional data errors	Jelena Radovanović
11:45 – 12:00	Transformation of a Physics Textbook into MOOCs: A closer look at interactive exercises and problems	Saif Rayyan

GTG Symposium III **Mathematics in Physics education**
– *organizer*: **Gesche Pospiech** CHRYSLER B – second floor

when	What	who
10:30 – 12:00	Mathematics in Physics education	Yaron Levi Ileana Greca Gesche Pospiech

Wednesday, 8 July 2015

when	what	where
12:00 – 12:30	Coffee break	Open space – second floor
12:30 – 14:00	**Parallel session V**	
	Oral session G	CHRYSLER A – second floor
	Oral session H	CHRYSLER B – second floor
	Oral session I	JAGUAR A – second floor

Oral session G – *chairperson*: **Dagmara Sokołowska** CHRYSLER A – second floor

when	what	who
12:30 – 12:50	Students' ability to solve physics tasks	Marie Snetinova
12:50 – 13:10	Gap between 9th grade physics curriculum and 9th grade physics textbook in terms of including science process skills	Beril Yılmaz Senem
13:10 – 13:30	Children need correct explanations already in kindergarten	Nada Razpet
14:30 – 14:50	Teaching energy in the light of the history and epistemology of the concept	Manuel Bächtold

Oral session H – *chairperson*: **Josef Trna** CHRYSLER B – second floor

when	What	who
12:30 – 12:50	School knowledge test as a class tournament	Daniel Dziob
12:50 – 13:10	Teaching science through didactic games	Katarina Susman
13:10 – 13:30	Concept formation - strategies for ordering teaching/learning sequences using active and transmissive methods	Michaela Velanová
14:30 – 14:50	Examples of best practice for cross-age peer tutoring in physics	Marianne Korner

Oral session I – *chairperson*: **Zdeňka Koupilová** JAGUAR A – second floor

when	what	who
12:30 – 12:50	Preliminary data analysis of SSQ-HOPE questionnaire on factors inspiring secondary students to study physics	Gesche Pospiech
12:50 – 13:10	Teaching biophysics at the Faculty of Rehabilitation, Józef Piłsudski University of Physical Education in Warsaw	Michał Wychowański
13:10 – 13:30	Problems with physics-related contexts in mathematics textbooks for Mexican secondary school: Some alarming examples of artificial problem contextualizations	Josip Slisko
14:30 – 14:50	CARONTE, a digital educational material for the teaching and learning basic astronomical phenomena	Tatiana Silva

Wednesday, 8 July 2015

when	what	where
14:00 – 15:00	Lunch	Hotel restaurant
15:00 – 16:30	**Poster session**	
	Poster session I	
	Poster session II	
16:30 – 18:00	GIREP general assembly	CHRYSLER AB – second floor
18:30 – …	Conference dinner	Rolls Royce AB – first floor

Poster session I

no.	what	who
1	Developing key competences at elementary teaching level	Stefania Elbanowska
3	Drama oriented teaching methods in teaching physics	Claudia Haagen
5	Key problems and effective cognitive conflict strategies in teaching geometrical optics	Yun-Ju Chiu
7	Magnetic nanoparticles as an extension of the curriculum of magnetism	Lucie Kolarova
9	Pasta and microwaves – a perfect combination for demonstrating some optical phenomena	Sasa Ziherl
11	A teaching proposal: Mechanical analog of an over-damped Josephson junction	Immacolata D'Acunto
13	Thermodynamics and statistical physics – the peer instruction method in upper university level course	Zdeňka Koupilová
15	Inquired-based lessons on optics from the view of a pre-service teacher	Bogdan Łabędź
17	Regional centres for physics teachers in the Czech Republic – experience from first two years	Irena Dvořáková
19	The development of students` digital competence and physics teacher's professional development needs	Inese Dudareva
21	Teacher's design of practical work	Wouter Spaan
23	Peer instruction approach in teaching electricity and magnetism in primary school	Jerneja Pavlin
25	The first results of the case study: Implementation of peer instruction in Czech schools	Jana Šestáková
27	Inquiry-Based Science Education (IBSE) method in science classes for the 4th grade of primary school	Aleksandra Wańczyk
29	PIBID - Scholarship institutional project to teaching innovation. A better way to prepare our future teachers?	Alexandre Pereira Chahad
31	A teaching proposal: Mechanical analog of an over-damped Josephson junction	Immacolata D'Acunto
33	Improving of Students' DIY skills by an example of key competences development at ECYGDA Laboratory	Nataliya Kazachkova

Poster session II

no.	what	who
2	Bottle-and-water-jet demonstration of free-fall weightlessness: Do high-school students know it and what are their explanations?	Jasmina Baluković
4	Space science in thermodynamics	Annamária Komáromi
6	Summary and typology of astronomy popularization in the Czech Republic	Radek Kříček
8	Using technology in teaching thermal equilibrium	Rubén Sánchez Sánchez
10	Assessing the professional vision of pre-service teachers in the teaching-learning-lab	Florian Treisch
12	Assessment of STEM-design challenges: a review	Leen Goovaerts
14	General relativity for secondary-school level students	Matěj Ryston
16	Promoting renewable energy choices among elementary school pupils	Mildred Guerrero
18	Integrating data-logging with modelling and video analysis	Laurence T. Rogers
20	Learning earthquake physics using educational seismic accelerometer	Hyunsoo Kim
22	Surveys of pupils' conceptions of force, gravitation and motion	Abdeljalil Métioui
24	Seemingly unique devices – how to use nonsenses in physics teaching	Vera Koudelkova
26	Implementation of Inquiry-Based Learning units in primary school - a case study	Justyna Nowak
28	Various kinds of problems and developing of problem solving competencies in an introductory physics course for chemistry majors	František Látal
30	The role of symmetry in finding the equivalent resistance of regular networks	Roberto Capone
32	Using self-made devices and impressive demonstration at the lessons and beyond	Nataliya Kazachkova

Thursday, 9 July 2015

when	what	where
9:00 – 10:15	**Roman Rosiek** – *general talk IV* Psychophysiological methods in research on science education	CHRYSLER AB – second floor
10:15 – 10:30	Coffee break	Open space – second floor
10:30 – 12:00	**Parallel session VI**	
	Oral session J	CHRYSLER A – second floor
	Oral session K	CHRYSLER B – second floor
	Workshop G	JAGUAR A – second floor
	Symposium IV	JAGUAR B – second floor

Oral session J – *chairperson*: **Roman Rosiek** CHRYSLER A – second floor

when	what	who
10:30 – 10:50	Analysis of problem solving processes in physics based on eye-movement data	Eizo Ohno
10:50 – 11:10	Students' different approaches to solving problems in kinematics explored by eye-tracking method and implications of the findings for teaching physics	Martina Kekule
11:10 – 11:30	Integration of some general topics into the introductory physics course for non-physicists – a good practice?	Nada Razpet
11:30 – 11:50	Learning physics with the use of the forum and cooperative learning	Martínez Briones Carlos Alberto

Oral session K – *chairperson*: **Josip Slisko** CHRYSLER B – second floor

when	what	who
10:30 – 10:50	Teaching enquiry to physics teachers following the TEMI methodology	Marina Carpineti
10:50 – 11:10	The steam generator project - developing key competencies in first year engineering physics students through project based learning	James Mackay
11:10 – 11:30	Teachers participant to the European project TEMI practice the enquiry methodology in their classroom	Sara Barbieri
11:30 – 11:50	Perspective primary teacher education in physics: A model and the case of optics	Marisa Michelini

Workshop G – *leader*: **Mateusz Wojtaszek** JAGUAR A – second floor

when	what	who
10:30 – 12:00	Simple experiments for enhancement of pupils' curiosity about science	Mateusz Wojtaszek

Symposium IV **Teacher education for assessment of IBSE skills and competences: materials and programmes of the SAILS project** – *organizer*: **Eilish McLoughlin** JAGUAR B – second floor

when	what	who
10:30 – 10:45	Teacher education for assessment of IBSE skills and competences: materials and programmes of the SAILS project	Eilish McLoughlin
10:45 – 11:05	Assessment opportunities in inquiry-based learning – case studies based on the light unit	Marian Kires
11:05 – 11:25	Teacher experiences of the SAILS Unit "Up there… how is it?"	Vanessa de Andrade
11:25 – 11:45	Teacher Education Program for development of inquiry-skills and strategies for assessment in IBSE	Dagmara Sokołowska
11:45 – 12:00	Teachers` inquiry and assessment skills developed within in-service teacher training course	Zuzana Jeskova

Thursday, 9 July 2015

when	what	where
12:00 – 12:30	Coffee break	
12:30 – 14:00	**Poster session**	
	Poster session III	
	Poster session IV	
14:00 – 15:00	Lunch	Hotel restaurant
14:30	Excursion to Książ Castel	Bus to Książ
15:00	Wrocław walk tour	Bus to City Center

Poster session III

no.	What	who
1	Screen capture for mini-lessons in physics courses	Tetyana Antimirova
3	Collection of solved problems in physics – online learning source encourages students' active learning	Zdeňka Koupilová
5	Planning simple experiments as a way to learn science by inquiry	Mateusz Wojtaszek
7	Developing science process skills via classroom - based authentic research experiences	J.Christopher Moore
9	Learning physics in Alice's wonderland	Ching Chi Chu
11	Students' ideas about optics of vision	Ana Gostincar
13	Students' epistemological beliefs about sciences – results of assigning the EBAPS instrument in the Czech Republic	Blanka Zajacová
15	Terrain experiments with data logger in physics teaching in higher secondary education	Jozef Trenčan
17	How to increase teachers´ self-confidence - an example concerning semiconductors	Leoš Dvořák
19	Implementation of Inquiry-Based Learning units in primary school during "matter" unit	Daniel Dziob
21	Understanding entropy – translating the technical into the intuitive	Rafael Menezes dos Santos
23	The position of experiments in grammar school students' semantic space	Petr Kacovsky
25	The key competences and SCIENTIX	Elżbieta Kawecka
27	Specific competences considered most realized and most important in physics programs in Mexico	Mario H. Ramírez Díaz
29	Science in young people's choices and the key competences	Stefania Elbanowska
31	Teachig physics to non physicist: physics for Agricultural, Biotech and Environmental Sciences	Alberto Stefanel
33	A formative intervention experiment of building quantum mechanics base concepts with math and computer science students	Francesca Monti

Poster session IV

no.	what	who
2	Development of key competences in activities of FYKOS – the Internet physics competition	Karel Kolář
4	Methodological investigation of physics textbook analysis based on triadic model of the signs	Eizo Ohno
6	Did you know Einstein's formula was in Maxwell's book?	Agnes Corrado
8	Is a simple pendulum really simple? – an analysis of textbooks	Vojtěch Žák
10	From Galilei's clepsydra to WEBcamera: Methods of tracing of motion in teaching physics	Horváthné Finta Zsanett
12	Electronic properties of graphene: A learning path for undergraduate students	Dominique Persano-Adorno
14	The effects of different phases of a Predict-Observe-Explain activity on students' learning about buoyancy	Jelena Radovanović
16	Biomechanics of the Argentine Tango: an inquiry-driven learning path for passionate mechanical engineering undergraduates	Nicola Pizzolato
18	The importance of carbon dioxide from the perspective of environmental physics	Libuše Švecová
20	Learning of physics with modern productive methods	Lorena Kelo
22	Impact of a program to develop cognitive strategies for meaningful learning (DECAS) from a physics course	Iván R. Sánchez Soto
24	Curriculum for introductory optics	Claudia Haagen
26	Evaluation of pupils during inquiry-based lessons	Tomasz Kowalski
28	Irregular chaos in a bowl	Péter Nagy
30	Towards a problem-based learning by unit research of work and energy	Iván R. Sánchez Soto
32	Improving Of Students' DIY Skills By An Example of Key Competences Development At ECYGDA Laboratory	Nataliya Kazachkova

Friday, 10 July 2015

when	what	where
9:00 – 10:15	**Edward Redish** – *general talk V* Analyzing the competency of mathematical modeling in physics	CHRYSLER AB – second floor
10:15 – 10:30	Coffee break	Open space – second floor
10:30 – 12:00	**Parallel session VI**	
	Oral session L	CHRYSLER A – second floor
	Oral session M	CHRYSLER B – second floor
	Workshop H	JAGUAR A – second floor

Oral session L – *chairperson*: **Wim Peeters** CHRYSLER A – second floor

when	what	who
10:30 – 10:50	Implementation of discussion method to favour physics problem solving among high school students	Louis Trudel
10:50 – 11:10	Investigating the integration of ICT tools by science teachers following a blended professional development program	Dimitris Psillos
11:10 – 11:30	Enquiring the Higgs mechanism: A path for teachers	Marco Giliberti
11:30 – 11:50	The pre-service teachers' conceptions after training about ionic and electrons conduction in simple electric circuit	Abdeljalil Métioui

Oral session M – *chairperson*: **Fatih Taşar** CHRYSLER B – second floor

when	what	who
10:30 – 10:50	The use of Salvador Dali's works to discuss concepts of modern physics in the classroom	Jardim Wagner
10:50 – 11:10	A teaching-learning sequence on the concept of mass and required skills for teaching relativity	Fabiana Kneubil
11:10 – 11:30	On the balance laws of energy, momentum and entropy – Some surprising similarities in their historical development	Friedrich Herrmann
11:30 – 11:50	The identity of mass and energy as the seed for teaching special relativity	Agnes Corrado

Workshop H – *leader*: **Friedrich Herrmann** JAGUAR A – second floor

when	what	who
10:30 – 12:00	COACH and the Karlsruhe physics course	Friedrich Herrmann

Friday, 10 July 2015

when	what	where
12:00 – 12:30	Coffee break	Open space – second floor
12:30 – 14:00	**Parallel session V**	
	Oral session N	CHRYSLER A – second floor
	Oral session O	CHRYSLER B – second floor
	Oral session P	JAGUAR A – second floor
14:00 – 15:00	Closing ceremony	CHRYSLER AB – second floor

Oral session N – *chairperson*: **Edward F. Redish** CHRYSLER A – second floor

when	what	who
12:30 – 12:50	Defining physical quantities: A major subject generally considered minor	Agnes Corrado
12:50 – 13:10	Does teaching and learning of introductory electromagnetism have to be quite so complicated?	Colm O'Sullivan
13:10 – 13:30	Representational issues in teaching ideas about matter	Peter Hubber
14:30 – 14:50	Hydrogels in the classroom	Jerneja Pavlin

Oral session O – *chairperson:* **Ewa Dębowska** CHRYSLER B – second floor

when	what	who
12:30 – 12:50	A multiple resources based curriculum development – the case of energy	Yaron Lehavi
12:50 – 13:10	Revival of physics demonstration experiments in development of problem solving as the key competency	Josef Trna
13:10 – 13:30	How students understand polarization of light and its role in the transmission through anisotropic media?	Maja Pečar
14:30 – 14:50	Helping students explore concepts relating to the electric field at upper level secondary science education	Richard Moynihan

Oral session P – *chairperson*: **Claudio Fazio** JAGUAR A – second floor

when	what	who
12:30 – 12:50	Physics teaching and learning reform in Armenian schools	Julietta Mirzoyan
12:50 – 13:10	Implementation of an experiential approach to teacher training in French high school science	Louis Trudel
13:10 – 13:30	Galilean relativity conceptual understanding in kinematics' problems with Cartesian graphs and qualitative questions	Marina Castells
14:30 – 14:50	Einstein's biggest blunder? Debates about errors in science and the challenge to authority in a didactic game about cosmology	Alexandre Bagdonas