

THE 5th INTERNATIONAL CONFERENCE
RESEARCH IN DIDACTICS OF THE SCIENCES

PROGRAMME

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RESEARCH IN DIDACTICS OF THE SCIENCES

PROGRAMME

PEDAGOGICAL UNIVERSITY OF KRAKÓW

KRAKÓW, 2012 JUNE 27-29

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THE CONFERENCE IS ORGANIZED UNDER THE AUSPICES OF HIS
MAGNIFICENCE RECTOR OF THE PEDAGOGICAL UNIVERSITY OF KRAKÓW,
PROFESSOR MICHAŁ ŚLIWA,
AT THE 45TH ANNIVERSARY OF SCIENTIFIC WORK
AND 50 YEARS OF TEACHING OF
PROFESSOR JAN RAJMUND PAŚKO.

General Information

*Dear Participants,
Please leave your presentation at the registration desk,
if possible during registration.*

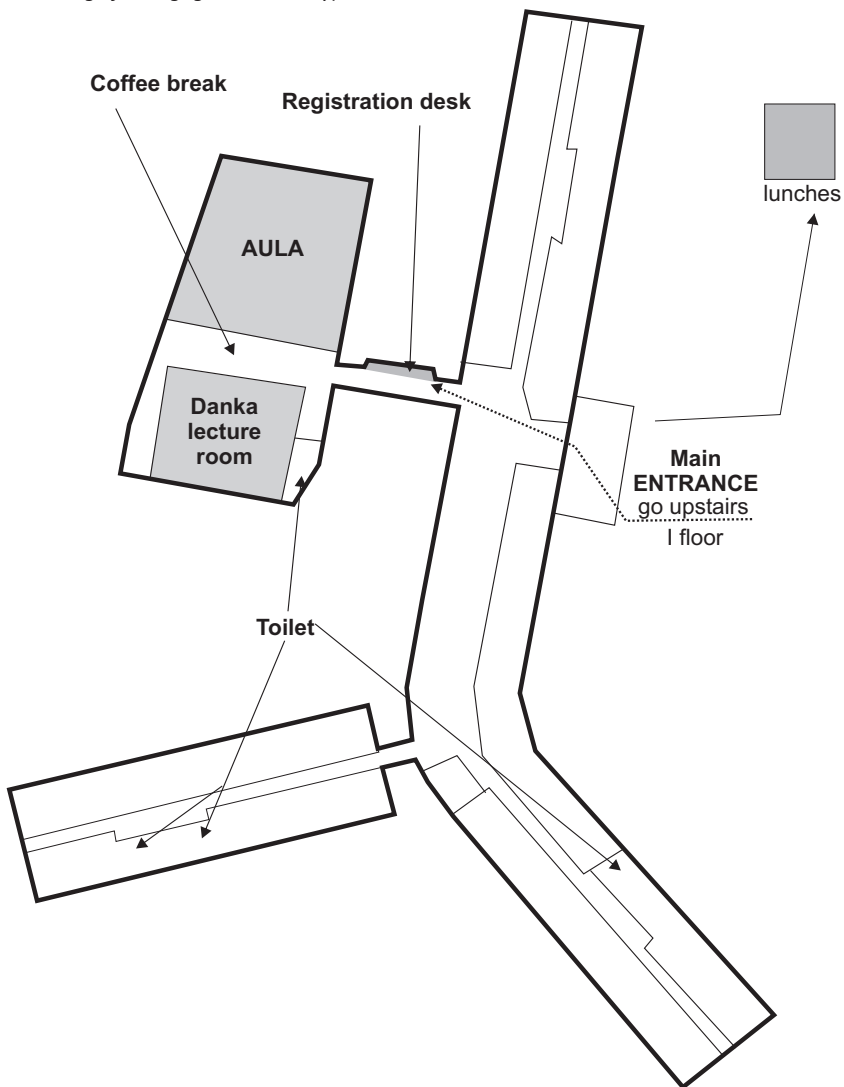
*If you have a poster,
find your poster's number in a conference programme and place
it on an appropriate board:
- on Wednesday and remove it on Friday*

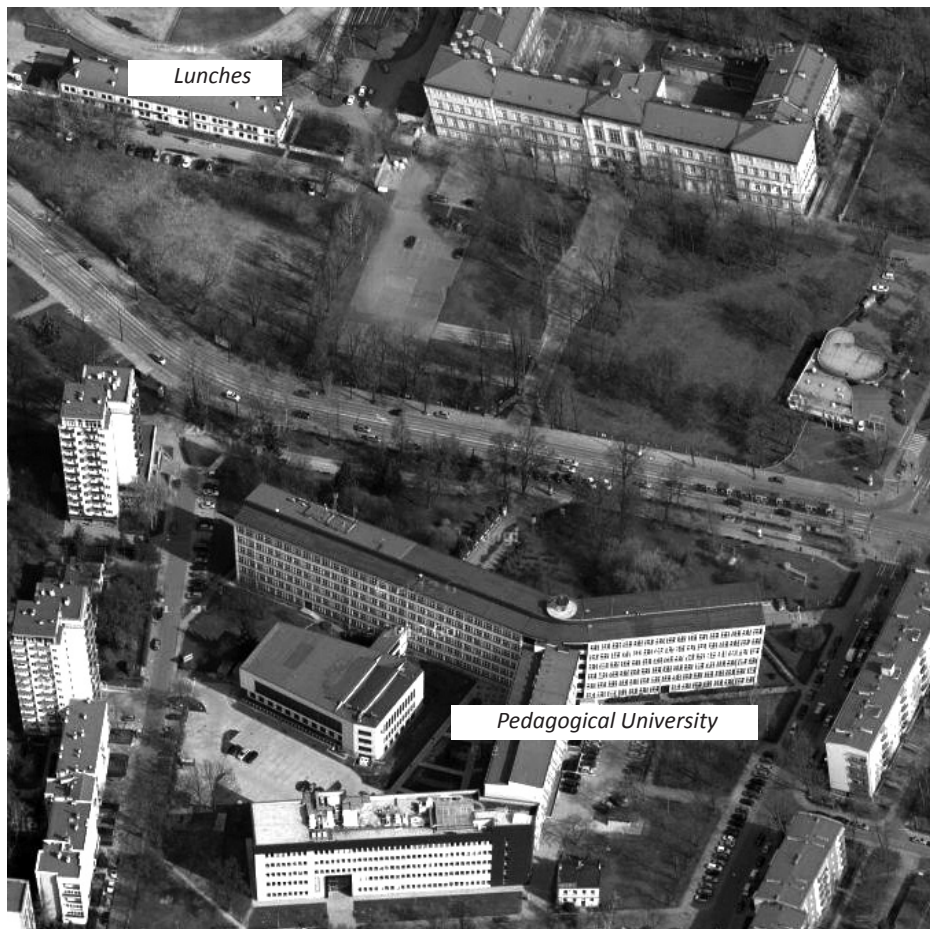
*If you have any questions do not hesitate to ask us.
Have a nice conference!*

Maps

Map of Conference Centre

(Main building of Pedagogical University)





Detailed Programme

Timing:

- plenary lecture 60 min (45 min. of talk + 15 min. discussion)
- other oral presentation 15 min (12min. talk + 3 min. discussion)

Wednesday 27.06.2012

7:30 – 8:30 – 1st floor, next to Aula

REGISTRATION, Podchorążych 2,

8:30 – 9:00 Aula

OPENING CEREMONY,

Rector of Pedagogical University in Kraków, prof. dr hab. Michał Śliwa,

9:00 – 11:00 – Aula

Plenary lectures - CHAIRPERSON – Liberato Cardellini

Peter E. Childs

Dept. of Chemical & Environmental Sciences and National Centre for Excellence in Mathematics and Science Teaching and Learning, University of Limerick, Ireland

From SER to STL: translating science education research into science teaching and learning (EN)

Jan Rajmund Paśko

Department of Chemistry and Chemistry Didactics, IB, Pedagogical University of Kraków

Education of chemistry and chemistry teaching (EN/PL)

11:00-11:30 Coffee break

11:30 – 13:00 Session in sections

section 1A – Danka lecture room, 1st floor

Chemistry – CHAIRPERSON - Peter E. Childs

Valéria Campos dos Santos; Agnaldo Arroio

Faculdade de Educação – Universidade de São Paulo, Brasil

The Representative Levels in Chemical Education (EN)

Martin Bílek, Veronika Machková

University of Hradec Kralove,

Experimental Activities as Part of TPCK in Pre-graduate Chemistry Teachers Education

Ľubomír Held

University of Trnava, Slovak Republik

Tradition and Future of Inductive Approach to Education (SK)

Hana Cídllová, Anna Lovichová, Kateřina Hájková, Anna Bayerová

Department of Chemistry, Masaryk University, Brno, Czech Republic

Chemistry Education at Primary and Secondary Grammar Schools in the Czech Republic: Target Skills from the Point of View of Pupils and Graduates (EN)

Ryszard M. Janiuk

Department of Chemical Education, Maria Curie-Skłodowska University, Lublin, Poland

Impact of out-of-school learning on science education in Poland (EN)

Vassil Hadzhiiliev¹, Maya Galabova¹, Zhaneta Stoykova², Lina Hadzhiilieva²

1 Bulgaria, Stara Zagora, Trakia university, Medical faculty,

2 Bulgaria, Stara Zagora, Trakia university, Pedagogical faculty

Development of the ecological mindset in children and adolescents with the help of knowledge of the natural sciences (EN)

section 1B – Aula, 1st floor

Nature/Geography – CHAIRPERSON – Krzysztof Kruczała

Hana Čtrnáctová, Věra Čížková

Charles University in Prague, The Czech Republic

Science skills of pupil/students in the period of curricular reform implementation (CZ)

Tereza Kudrnová, Renata Šulcová

Charles University in Prague, Faculty of Science, The Czech Republic

Probe into science research results according to the type of teaching literacy (CZ)

Andrzej Wręczyski

Jan Długosz University of Częstochowa, Institute of Chemistry, Environmental Protection and Biotechnology, Poland

Nautical Science and Eco-tourism Taught by Means of Research Projects as a Part of Teaching Natural Science in Secondary Schools (PL)

Mariola Tracz, Agnieszka Świętek

Pedagogical University of Cracow, Institute of Geography, Department of Geography Teaching, Poland

Teaching Natural science in primary school in teachers' opinion (PL)

Wiktór Osuch

Pedagogical University of Cracow, Institute of Geography, Department of Geography Education, Cracow, Poland

The assessment of competences regarding human activities in the environment by geography student-candidates for teaching posts (PL)

Jarmila Kmeťová

Faculty of Natural Sciences, Matej Bel University, Banská Bystrica, Slovakia

Natural science literacy of primary school pupils in Slovak Republic (SK)

13:15 – 14:15 Lunch break – “ADESSO”, Podchorążych 3

14:30 – 16:00 Session in sections

section 2A - Danko lecture room, 1st floor

Chemistry - CHAIRPERSON - Martin Bílek

Jiří Rychtera, Martin Bílek, Ivan Holý, Jiří Havlíček, Kristýna Hrubá, Eliška Synková

University of Hradec Kralove, Faculty of Science, Czech Republic

Chemistry Olympics as a Means of Attracting Students' Attention towards Studying Natural Science Disciplines (CZ)

Petr Šmejkal, Eva Stratilová Urválková;

Charles University in Prague, Faculty of Science, The Czech Republic;

Support for use of probeware in science for teachers and pupils (CZ)

Eva Trnová

Faculty of Education, Masaryk University, Czech Republic
Teacher development in IBSE (CZ)

Czesław Puchała

Jan Długosz University of Częstochowa, Institute of Chemistry, Environmental Protection and Biotechnology, Poland
International actions on chemical threats reduction (PL)

Piotr Zwoliński

Institute of Chemistry, University of Silesia, Katowice, Poland
Properties of matter – implementation the issue using the workshop method (PL)

Martin Rusek, Ondřej Solnička

Department of Chemistry and Chemistry Education, Faculty of Education, Charles University in Prague, Czech Republic
Mind Maps in Chemistry Education: Potential and Limitations (EN)

section 2B – Aula, 1st floor

Physics – CHAIRPERSON – Andrzej Barański

Oľga Holá

Faculty of Chemical and Food Technology of Slovak University of Technology, Bratislava, Slovak Republic
Natural Sciences in our Life Today and Tomorrow (EN)

Louis Trudel¹, Abdeljalil Métioui²

1. University of Ottawa, Canada

2. Université du Québec à Montréal, Canada

Preservice teachers' Modeling Processes of kinematical concepts using a video-based laboratory (EN)

Stefania Elbanowska-Ciemuchowska

Division of Physics Education, Faculty of Physics, University of Warsaw, Poland
Young people's attitude toward science (PL)

Romuald Małecki, Izabela Józefczyk, Roman Rumianowski

Politechnika Warszawska, Filia w Płocku, Polska

Analysis of the results of the compensatory courses in physics and mathematics realised in the affiliate Branch of the Warsaw University of Technology (PL)

Arkadiusz Wiśniewski

The Institute of Physics, Maria Curie Skłodowska University in Lublin, Poland
The diagnostic study on the interests and skills in physics at the initial stage of learning (EN)

Michał Palczewski

Faculty of Physics, University of Warsaw, Poland

The individual attitude in methods of teaching mathematics and physics at school. Special ways of teaching very good students and students with educational problems (EN)

16:15 – 17:30 – Aula, 1st floor

POSTER SESSION

Thursday 28.06.2012

8:30-10:00 – Danka lecture room, 1st floor

Plenary lectures - CHAIRPERSON – Hana Čtrnáctová

Andrzej Barański

Wydział Chemii, Uniwersytet Jagielloński, Kraków, Polska

On teaching and learning of stoichiometry (PL)

Liberato Cardellini¹ , Jack Holbrook²

1. Dipartimento SIMAU, Facoltà di Ingegneria, Ancona, Italy

2. Centre for Science Education, University of Tartu, Estonia

Motivational Secondary Science Education: A Requirement for Promoting Tertiary Education (EN)

10:00-10:15 Representative of ZAMKOR (Educational Publisher)

10:15-10:45 Coffee break

10:45-12:15 Session in sections

section 3A – Danka lecture room, 1st floor

Chemistry – CHAIRPERSON – Ryszard M. Janiuk

Jiří Havlíček, Karel Myška, Karel Kolář

Faculty of Science, University of Hradec Králové, Hradec Králové, Czech Republic

Microwaves in the School Organic Chemistry Experiment (CZ)

Łukasz Łańcucki¹, Ewa Michniak¹, Izabela Bulanda², Krzysztof Kruczała^{1,2}

1. Faculty of Chemistry, Jagiellonian University, Kraków

2. Department of Chemistry and Chemistry Didactics, IB, Pedagogical University of Cracow

Fuel Cells as Alternative Energy Sources: Preparation of Protonconducting Membranes Based on Poly (vinyl alcohol) (EN)

Wilson Massashiro Yonezawa¹, Gabriel Chemasco de QuadrosNavajas de Araújo², Aguinaldo

Robson de Souza³, Jorge Henrique Piazzentin Ono⁴

São Paulo State University – UNESP - College of Science

1. Computer Science Department

2. Teaching Science Master Degree Student

3. Chemistry Department

4. Computer Science Undergraduate Student

A computer card based game for chemistry teaching (EN)

Martin Rusek, Kateřina Menclová

Department of Chemistry and Chemistry Education, Faculty of Education, Charles

University in Prague, Czech Republic

Chemistry Education at Vocational Schools with Respect to the Character of Particular Fields (CZ)

Yuri Orlik, Pedro Granados, Marciana Kotz de Lima, Gessyca da Silva

Universidade Federal da Integração Latino-Americana, UNILA, Foz do Iguaçu, Brazil

Teaching of Natural Sciences and Mathematics with the use of literature and poetry examples: an interdisciplinary view (EN)

Piotr Jagodzinski, Robert Wolski

Department of Chemical Education, Adam Mickiewicz University, Poznań

Modern strategies for professional practice of school natural sciences students supported by online learning system within the European Union project (PL)

section 3B – Aula, 1st floor

Physics – CHAIRPERSON - Ol'gaHolá

Abdeljalil Métioui¹ and Louis Trudel²

1- Département de Didactique, Faculté des sciences de l'éducation, Université du Québec à Montréal, Montréal (Québec) Canada

2- Faculté d'éducation, Université d'Ottawa, Ottawa (Ontario)

Critical Analysis Of Scientific Web Sites (EN)

Katarína Kozlíková

Institute of Medical Physics, Biophysics, Informatics and Telemedicine, Faculty of Medicine, Comenius University in Bratislava

Electromagnetic Methods in Diagnostics and Therapy - A Twelve Year Course Experience (EN)

Dagmara Sokołowska

Jagiellonian University, Krakow, Poland

IPITHIA - a new active learning strategy for the repetition course in mechanics for freshmen (EN)

Alan Freitas Machado, Rafael Siqueira, Thomaz Lopes

Universidade Estadual do Rio de Janeiro, Brazil

Using educational software in teaching Physics and Mathematics (EN)

Olga Malvaez Sánchez, Labarrere A., Quintanilla M., Joglar C., Brunstein J.

Pontificia Universidad Católica de Chile, Santiago, Chile

Plans of the tough in design of didactic's units in the physic teaching learning process. (EN) - WORKSHOP

12:30-13:30 lunch break

"ADESSO", Podchorążych 3

13:45 – 15:15 Session in sections

section 4A – Danka Lecture Room, 1st floor

Chemistry – CHAIRPERSON – Mordechai Livneh

Anne O'Dwyer , Peter E. Childs

Chemistry Education Research Group, Dept. of Chemical and Environmental Sciences and National Centre for Excellence in Mathematics and Science Teaching and Learning, University of Limerick, Limerick, Ireland,

An Intervention Project to improve Teaching and Learning of Organic Chemistry in Irish schools (EN)

Renata Bellová, Danica Melicherčíková

Catholic University SR

Drug prevention in the education system and monitoring at universities (SK)

Stanislava Bubíková, Marta Klečková

Faculty of Science, Palacký University Olomouc, Czech Republic
Experiments with Nature-based Colours (CZ)

Zofia Jolanta Kloc

Department of Chemical Education, Faculty of Chemistry, Maria Curie Skłodowska University, Lublin, Poland
Chemical Competition „One Year Before Matura Exam” (PL)

Mária Orolínová

Trnava University in Trnava, Slovakia
Some critical points of the minimal guidance approach in science education (EN)

Veronika Machková, Martin Bílek

University of Hradec Kralove, Czech Republic
Towards Computer Supported Model Based Learning in Chemistry – The Example of Acid-base Titration Simulators (CZ)

section 4B – Aula, 1st floor

Environmental Research / ESTABLISH project – CHAIRPERSON – Iwona Maciejowska

Martin Lindner, Louise Bindel

Martin-Luther-University Halle-Wittenberg, Germany
Implementing STEM-Teaching in European countries: the role of the stakeholders (EN)

Hana Čtrnáctová, Mária Ganajová, Petr Šmejkal, Milena Kristofová

Karlova Univerzita v Praze, CZ; Univerzita P. J. Šafárika Košice, SK
Inquiry-based activities in topics: polymers, plastics and plastic waste (CZ)

Ganajová, M., Kimáková, K., Ješková, Z., Kireš, M., Kristofová, M.

Pavol Jozef Šafárik, University in Košice, Slovakia
Implementation of IBSE methods and teaching materials in science education in Slovakia (SK)

Paweł Broś, Iwona Maciejowska, Ewa Odrowąż

Jagiellonian University, Krakow, Poland
Educational Projects as Method for Developing Inquiry Attitudes and Skills (EN)

Javier Morales Pérez¹, Sebastian Truyols Mateu²

1. Department of Civil engineering. Alfonso X el Sabio University, Spain
2. Department of Statistics. Complutense University, Spain
Influence of certain variables in urban noise produced by vehicular traffic (EN)

Burckin Dal

Istanbul Technical University, Turkey
Students' understanding of environment (EN)

Social events:

17:00 Visit to Rynek Underground permanent exhibition (Rynek Główny 1);

20:00 Conference dinner BOHEMA restaurant, Gołębia 2

Friday 29.06.2012

8:30-10:00 Danka lecture room, 1st floor

Pleanary lectures – CHAIRPERSON - Yuri Orlik

Mordechai Livneh

Bar-ilan University Ramat-Gan, Israel

Science and Heritage - Chemistry in the Bible (EN)

Zehava Livneh and Mordechai Livneh

Yavneh High-School, Holon and Bar-Ilan University Ramat-Gan, Israel

Science and Society – Parents and Children Doing Science Together (EN)

10:00-10:30 Coffee break

10:30-12:00 Session in sections

section 5A - Danka lecture room, 1st floor

Chemistry - CHAIRPERSON - Małgorzata Nodzyńska

Katarína Kotuláková

Trnava University in Trnava, Slovakia

Revealing and reflecting on Students Prior Concepts about Phenomenon in Inquiry Based Teaching Practice

Agnieszka Kamińska-Ostęp

Department of Chemical Education, UMCS, Lublin, Poland

Science teachers' use of information and communication technology (PL)

Paweł Cieśla

Department of Chemistry and Chemistry Education, IB, Pedagogical University of Kraków

Is everything, what we teach at chemistry lessons at school correct, up to date and necessary?

Anna Michniewska, Paweł Cieśla

Department of Chemistry and Chemistry Education, IB, Pedagogical University of Kraków

Effect of chemical knowledge on the correctness of information retrieval on the Internet base on the example of atomic structure.

Małgorzata Krzeczowska, Kinga Patrzalek, Anna Migdał-Mikuli

Zakład Dydaktyki Chemii, Wydział Chemii UJ, Kraków

Scenarios of chemistry classes in the light of the new core curriculum and their role in developing the student's attitude toward research (PL)

Dariusz Siński, Jan Rajmund Paśko

Department of Chemistry and Chemistry Didactics, IB, Pedagogical University of Cracow

The nest education system – example of using (PL)

12:00 Closing of the conference

12:15-13:15 lunch – “ADESSO”, Podchorążych 3

List of posters

Wednesday 27.06.2012

16:15 – 17:30 – Aula Poster session

PSYCHOLOGY

Psych-01 Olga Kolyuh, Aynash Kudysheva;

Pavlodar state university named after S. Toraigirov, Kazakhstan.;

Emotional instability as the cause of manifestation of the difficulties in student's teaching

BIOLOGY

B-01 Patrícia da Silva Nunes; André Luis Corrêa; Paloma Rodrigues da Silva; Osmar Cavassan;
Sciences Faculty, UNESP, Bauru, S. Paulo, Brazil;

Approach between evolutionary adaptation and the niche construction theory: an interdisciplinary perspective for Biology teaching

B-02 Patrícia da Silva Nunes; OsmarCavassan; Paloma Rodrigues da Silva;

Sciences Faculty, UNESP, Bauru, S. Paulo, Brazil;

The concept of ecological succession in Brazilian textbooks: an essentially botanic topic

B-03 Patrícia da Silva Nunes; Paloma Rodrigues da Silva; Ana Maria de Andrade Caldeira;
Osmar Cavassan,

Sciences Faculty, UNESP, Bauru, S. Paulo, Brazil;

Dissemination of HIV: relations between knowledge, values and social practices

B-04 Marta Głogowska;

Institute of Biology, Department of Vertebrate Zoology and Human Biology Pedagogical University, Cracow, Poland,

Content of sodium and potassium in human cells of esophagus, stomach, small intestine and large intestine among patients from hospitals in Cracow

B-05 Marta Głogowska;

Institute of Biology, Department of Vertebrate Zoology and Human Biology Pedagogical University, Cracow, Poland;

The Content of mercury comparison between human small intestine and colon tissues

B-06 Paloma Rodrigues da Silva¹; Elaine S. N. Nabuco de Araújo¹; Graça S. Carvalho²; Patrícia da Silva Nunes¹; Ana Maria de Andrade Caldeira¹.

1. Sciences Faculty, UNESP, Bauru, S. Paulo, Brazil;

2. CIEC, Institute of Education, University of Minho, Braga, Portugal

Future Brazilian and Portuguese biology teachers' conceptions about science ethical values

B-07 Paloma Rodrigues da Silva¹; Elaine S. N. Nabuco de Araújo¹; Graça S. Carvalho²; Patrícia da Silva Nunes¹; Ana Maria de Andrade Caldeira¹.

1. Sciences Faculty, UNESP, Bauru, S. Paulo, Brazil;

2. CIEC, Institute of Education, University of Minho, Braga, Portugal;

Learning difficulties presented by Brazilian and Portuguese students in their bioethical training

B-08 Paloma Rodrigues da Silva¹; Marcela Pastana²; Cristiano Oliveira Gonçalves¹; Tiago Henrique Siebert³; Carlos Augusto Quagliato⁴; Selma Miranda⁵; Gabriel Greggi Ferreira⁶; Gustavo Soares¹; Marina Dindorf⁵; Maicon Antunes⁶;

1- Sciences Faculty, UNESP, Bauru, S. Paulo, Brazil;

2- Letters and Science Faculty, UNESP, Araraquara, S. Paulo, Brazil;

3- Aquaculture Center, UNESP, Jaboticabal, S. Paulo, Brazil;

4- Geosciences and Exact Sciences Institute, UNESP, Rio Claro, S. Paulo, Brazil;

5- Architecture, Arts and Communication Faculty, UNESP, Bauru, S. Paulo, Brazil;

6- Engineering Faculty, UNESP, Bauru, S. Paulo, Brazil;

Multiple areas, multiple results: 12 years of the Primeiro de Maio college preparatory course

B-09 E. Rybska, Z. Sajkowska

Adam Mickiewicz University, Poznań

The Laboratory of Nature and Biology Education

Commonsense knowledge versus scientific knowledge about snails – possibilities and negligences

B-10 E. Rybska¹, B. Jackowiak², A. Cieszyńska¹, R. Dudziak¹;

Adam Mickiewicz University, Poznań, Faculty of Biology

1. The Laboratory of Nature and Biology Education

2. Department of Plant Taxonomy

Searching for an effective model of teaching practice

CHEMISTRY

CH-01 Justyna Chrustek¹, Agnieszka Filipowska¹, Magdalena Jarzębak¹, Krzysztof Kruczała^{1,2};

1. Department of Chemistry and Chemistry Didactics, IB, Pedagogical University of Cracow, Poland;

2. Faculty of Chemistry, Jagiellonian University, Poland;

Ecological Aspect of Fuel Cells Applications

CH-02 Maria Helena Blasbalg, Agnaldo Arroio;

Faculdade de Educação – Universidade de São Paulo, Brasil;

The systems of representation in early sciences

CH-03 Hana Cídllová, Michaela Petrů, Anna Bayerová;

Department of Chemistry, Masaryk University, Brno, The Czech Republic;

The influence of Interdisciplinary Motivational Examples on Popularity of Subject Chemistry at Primary Schools in the Czech Republic

CH-04 Małgorzata Nodzyńska

Pedagogical University of Kraków, IB, Department of Chemistry and Chemistry Education, Poland

Visualization in chemistry and chemistry teaching (EN)

CH-05 Anna Bayerová, Hana Cídllová, Michaela Petrů;

Department of Chemistry, Masaryk University, Brno, The Czech Republic;

Chemistry Education on Primary Schools in the Czech Republic: Target skills and Popularity of the Subject

- CH-06 Renata Bellová, Ivana Tomčíková;**
Catholic University SR,
Use of multimedia for preparation of particular classes of natural sciences subjects
- CH-07 Hana Cídllová, Monika Beranová, Zuzana Mokrá, Barbora Valová;**
Department of Chemistry, Masaryk University, Brno, The Czech Republic;
The First Year of Chemistry Study at Faculty of Education, Masaryk University: Printed or Electronic Study Materials?
- CH-08 Czaja Małgorzata,**
Faculty of Chemistry, University of Gdańsk, Poland
The issue of gifted student learning in chemistry
- CH-09 Czaja Małgorzata,**
Faculty of Chemistry, University of Gdańsk, Poland
Exam in chemistry as a tool to measure teaching
- CH-10 Andrzej Persona;**
UMCS, Wydział Chemii,
Bioactive substances in cosmetic and environmental pollution. Computer Aided Classes.
- CH-11 Petr Šmejkal, Jan Břížďala**
Charles University in Prague, Faculty of Science, Czech Republic
Stereoscopy in chemistry education – new educational material and attitudes and opinions of teachers and pupils
- CH-12 Mária Ganajová, Petra Lechová, Hana Čtrnáctová, Milena Kristofová;**
Pavol Jozef Šafárik, University in Košice, SK; Charles University in Prague, CZ
Digital Library For Project and Inquiry-based education methods in chemistry
- CH-13 Andrzej Hudzik, Waldemar Tejchman,**
Department of Chemistry and Chemistry Education, IB, The Pedagogical University of Kraków;
Synthesis and biological activity of thiohydantoin
- CH-14 Paulina Błażejewska–Chadyniak, Agnieszka Michalska, Renata Mikołajczyk-Szwaczowska, Rafał Polowczyk, Marta Wawrzyniak, Piotr Jagodziński, Robert Wolski;**
Department of Chemical Education, Adam Mickiewicz University, Poznań;
Researches into the causes of choosing the extended matriculation examination in chemistry among secondary school pupils of biological and chemical profile
- CH-15 Piotr Jagodziński, Robert Wolski;**
Department of Chemical Education, Adam Mickiewicz University, Poznań;
Methodology of preparing films and educational research with hard of hearing and deaf students in chemistry range
- CH-16 Bożena Karawajczyk, Marek Kwiatkowski.**
Faculty of Chemistry, University of Gdańsk, Poland
Implementation of science workshops - the new curriculum proposition for the students of upper primary and lower secondary educational stage – a teachers' view.
- CH-17 Bożena Karawajczyk**
Faculty of Chemistry, University of Gdańsk, Poland
Preparing future teachers of chemistry and science for its role as a guardian of educational projects of students

CH-18 Jiří Havlíček¹, Jan Čermák², Karel Myška¹, Małgorzata Nodzyńska³, Karel Kolář¹;

1. Faculty of Science, University of Hradec Králové, Hradec Králové, Czech Republic,

2. Institute of Chemical Process Fundamentals, Academy of Sciences of the Czech Republic, Prague, Czech Republic;

3. Department of Chemistry and Chemistry Education, IB, Pedagogical University of Cracow, Poland;

Principles of Green Chemistry and their Using in Organic Synthesis

CH-19 Ewelina Komańska, Ewa Żesławska;

Department of Chemistry and Chemistry Didactics, IB, Pedagogical University of Cracow, Poland;

How to replace one hydroxyl group with another in the molecule of ellagic acid?

CH-20 Wioleta Kopek-Putała;

School in Korzkiew, Poland;

Work with school students special educational needs

CH-21 Aldona Kostuch¹, Agnieszka Basta¹, Monika Cudziło¹, Krzysztof Kruczała^{1,2}

1. Department of Chemistry and Chemistry Didactics, IB, Pedagogical University of Cracow, Poland;

2. Faculty of Chemistry, Jagiellonian University, Poland;

The Role of Free Radicals in Living Organisms

CH-22 Jan Rajmund Paško, Anna Stawiarska;

Department of Chemistry and Chemistry Didactics, IB, Pedagogical University of Cracow, Poland;

Imagination of pupils about models of areas around core of atom in light of research

CH-23 Małgorzata Krzeczowska, Kinga Patrzalek, Anna Migdał-Mikuli;

Zakład Dydaktyki Chemii, Wydział Chemii UJ, Kraków;

Is it possible to teach while amusing? Didactic games in the opinion of students of high schools

CH-24 Jana Prášilová, Jiří Kameníček, Marta Klečková;

Department of Inorganic Chemistry, Faculty of Science, Palacky University, Olomouc, Czech Republic;

Manufacturing of Paper - An Industrial Production of Everyday Life Aid

CH-25 Czesław Puchała;

Jan Długosz University of Częstochowa, Institute of Chemistry, Environmental Protection and Biotechnology, Poland;

Electrical properties of molecules in the teaching of chemistry

CH-26 Salete Linhares Queiroz¹, Jane Raquel Silva de Oliveira²,

1. University of São Paulo, Brazil;

2. Federal University of São Carlos, Brazil

Scientific language rhetoric: from the theoretical basis to the production of didactic material for undergraduate chemistry teaching

CH-27 Salete Linhares Queiroz¹, Cristiane Andretta Francisco²:

1. University of São Paulo, Brazil;

2. Federal University of São Carlos, Brazil;

Research in Chemistry Education in Brazil: An Overview

- CH-28 Maria Krzeczowska, Paweł Cieśla;**
Department of Chemistry and Chemistry Didactics, IB, Pedagogical University of Cracow, Poland;
Investigation on possibilities of application of UV/VIS spectroscopy in secondary school.
- CH-29 Iwona Sołtys, Ewa Żesławska;**
Department of Chemistry and Chemistry Didactics, IB, Pedagogical University of Cracow, Poland;
Derivative of epalrestat – finding crystallization conditions
- CH-30 Krystyna Wojciechowska, Krzysztof Wojciechowski, Monika Wesołowska;**
Institute of Chemistry, Siedlce University of Natural Sciences and Humanities, Poland;
The high school student's opinion on the developing of the nuclear power stations in Poland
- CH-31 Krzysztof Wojciechowski, Krystyna Wojciechowska, Joanna Pyra, Kamila Wierzchowska;**
Institute of Chemistry, Siedlce University of Natural Sciences and Humanities;
The knowledge on the nuclear energy student's beginning their study on the Siedlce University
- CH-32 Paulina Zimak, Małgorzata Nodzyńska;**
Department of Chemistry and Chemistry Didactics, IB, Pedagogical University of Cracow;
Success of Students' Education Process In The Context Of Didactical And Neurobiological Aspects
- CH-33 Valentin Oshchapovsky;**
Lviv State University of Vital Activity Safety, Lvov, Ukrainian;
Deterioration of the Level of Education: Retribution for the Scientifico-Technical Progress
- CH-34 Agnieszka Kania¹, Iwona Stawoska²**
¹*Faculty of Chemistry, Jagiellonian University,*
²*Department of Chemistry and Chemistry Education, IB, Pedagogical University of Kraków*
Chemistry for non-chemists – coordination compounds
- CH-35 Iwona Stawoska**
Department of Chemistry and Chemistry Education, IB, Pedagogical University of Kraków
Chemistry for pupils – just for fun?
- CH-36 - Paulina Błażejewska-Chadyniak, Agnieszka Michalska, Renata Mikołajczyk-Szwaczowska, Rafał Polowczyk, Marta Wawrzyniak**
Department of Chemical Education, Adam Mickiewicz University, Poznań;
Research on the causes of selection of the matriculation examination at the advanced level of chemistry among high school students of the biological-chemical profiles.
- CH-37 - Zarańska Lidka**
Department of Chemical Education, Adam Mickiewicz University, Poznań;
How to motivate the pupil to explore the chemical issues by evaluating?

PHYSICS

P-01 J. Chojnacka, G. P. Karwasz;

Institute of Physics, Nicolaus Copernicus University in Toruń, Poland;
Interdisciplinary educational paths: Physics for geographers

P-02 Stefania Elbanowska-Ciemuchowska, Aneta Łukaszek-Chmielewska, Michał Bednarek;

Faculty of Fire Safety, The Main School of Fire Service, Warsaw, Poland;
Visualization of exothermic and endothermic processes

P-03 Stefania Elbanowska-Ciemuchowska, Kamil Boryczko, Maciej Kozubal, Anna Samsel

Division of Physics Education, Faculty of Physics, University of Warsaw, Poland
Getting to know thermal phenomena

P-04 Oľga Holá;

Faculty of Chemical and Food Technology of Slovak University of Technology, Bratislava, Slovak Republic;
Experience of the lecture-experimental tours at secondary schools

P-05 Eva Kralova, Zuzana Balazsiova;

Institute of Medical Physics, Biophysics, Informatics and Telemedicine, Comenius University; Faculty of Medicine, Bratislava, Slovakia;
Semestral projects as the tool of active learning

P-06 Zuzana Balazsiova;

Department of Medical Physics, Biophysics, Informatics and Telemedicine, Comenius University; Faculty of Medicine, Bratislava, Slovak Republic;
Analysis of the nursing practice problem solving in the context of a comprehensive solution of nursing problems using physical knowledge

P-07 Marta Kuhnová;

Odborné nakladateľstvo Dr. Josef Raabe, Slovensko;
Students' misconceptions about energy

P-08 Marta Kuhnová;

Odborné nakladateľstvo Dr. Josef Raabe, Slovensko;
Do you know about energy more? (Influence of education reform on understanding energy concept)

P-09 Abdeljalil Métioui¹, Louis Trudel²;

1. Département de Didactique, Faculté des sciences de l'éducation, Université du Québec à Montréal, Montréal (Québec);
2. Faculté d'éducation, Université d'Ottawa, Ottawa (Ontario) Canada;
The movement according to Aristotle (384-322 AV. J.-C.), Buridan (1229-1363) and the student's teachers

P-10 Katarína Kozlíková

Institute of Medical Physics, Biophysics, Informatics and Telemedicine, Faculty of Medicine, Comenius University in Bratislava
Written Test As A form of Continuous Evaluation on Physics At Faculty of Medicine

GEOGRAPHY

G-01 Wiktor Osuch;

Pedagogical University of Cracow, Institute of Geography, Department of Geography Education, Cracow, Poland;

The sustainable development in Polish school – results of questionnaire research

ENVIRONMENT and ECOLOGY

E-01 Połatyńska M., Szczepko K., Markowski J.

Zakład Dydaktyki Biologii i Badania Różnorodności Biologicznej, Uniwersytet Łódzki, Łódź;

The humanitarian treatment of animals. In the II-IV grades of education

E-02 Dagmara Sokołowska;

Jagiellonian University, Krakow, Poland,

SECURE – Science Education Curriculum Research Project under the 7th Framework Program

E-03 Jitka Kloučková, Renata Šulcová;

Charles University in Prague, Faculty of Science, Czech Republic

Outdoor science educational activities

E-04 Andrzej Wręczycki;

Jan Długosz University of Częstochowa, Institute of Chemistry, Environmental Protection and Biotechnology, Poland;

Eco - tourism versus Nautical Science. Didactic Project to be implemented among Students Studying Tourism in the Academic Faculties of Natural Sciences

E-05 Rydlewska Grażyna

Department of Chemical Education, Adam Mickiewicz University, Poznań;

Convention on International Trade in Endangered Species of Wild Fauna and Flora

E-06 Grześkiewicz Barbara, Brzezińska Katarzyna

Department of Chemical Education, Adam Mickiewicz University, Poznań;

Virtual educational path

E-07 Alicja Kozak, Niechwiadowicz Hanna

Department of Chemical Education, Adam Mickiewicz University, Poznań;

Ecological areas in the school practice

E-08 Chobot-Kłodzińska Marzanna, Zakrzewska Jolanta

Department of Chemical Education, Adam Mickiewicz University, Poznań;

Sustainable development in frames of the lessons of nature

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