



ŠIAULIŲ
UNIVERSITETAS

ŠIAULIAI UNIVERSITY



SMC "SCIENTIA EDUCOLOGICA"

**3rd International Baltic Symposium on Science and Technology Education
BalticSTE2019**

**"SCIENCE AND TECHNOLOGY EDUCATION: CURRENT
CHALLENGES AND POSSIBLE SOLUTIONS"**

17-20 June 2019

SYMPOSIUM PROGRAMME



Šiauliai, Lithuania

Symposium Organizer

Scientific Methodical Center „Scientia Educologica“ in cooperation with Institute of Education,
Šiauliai University

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Symposium Website & E-mail

<http://balticste.com> balticste@gmail.com

Sunday
16th June 2019

17.30 - 20.30

ICE-BREAKING

(Room 101, Institute of Education, University of Šiauliai, P.Višinskio Street 25)

Monday
17th June 2019

8:00 - 9:30

REGISTRATION

(Second Floor, Library of Siauliai University, Vytauto Street 84)

9:30-10:00

OPENING CEREMONY

(Second Floor, Room 205, Library of Siauliai University, Vytauto Street 84)

Musical Greeting **Regina Varpučianskienė**
Rector of the University **prof. dr. Darius Šiaučiūnas**
Head of Institute of Education **prof. dr. Daiva Malinauskienė**
President of the Lithuanian Scientific Society **prof.dr Jonas Jasaitis**
International Greeting (Brazil) **prof.dr. Agnaldo Arroio**
Symposium Chair **prof. dr. Vincentas Lamanaukas**

10:00-12:00

PLENARY MEETING 1

(Second Floor, Room 205, Library of Siauliai University, Vytauto Street 84)

*Chairmen: **Tiia Rüütmann, Vincentas Lamanaukas***

1. **Tiia Rüütmann.** Engineering pedagogy science as the contemporary basis of effective teaching science and technology (Estonia)
2. **Dusica Rodič.** Combined measures of students success: Recent trends and developments in science education research (Republic of Serbia)

12:00-14:00



LUNCH

14:00-15:00

PLENARY MEETING 2

(Second Floor, Room 205, Library of Siauliai University, Vytauto Street 84, Šiauliai)

*Chairmen: **Angela James, Boris Aberšek***

Boris Aberšek. Smart and intelligent learning environments and ethical issue (Slovenia)

15:00-15:30



COFFEE BREAK

15:30-17:00

SECTION 1

General S&T Education Issues

(Fourth Floor, Room 411, Library of Siauliai University, Vytauto Street 84, Šiauliai)

Chairmen: Andris Broks, Dusica Rodic

1. **Mária Babinčáková, Mária Ganajová, Ivana Sotáková, Veronika Jurková.** The implementation of formative assessment into chemistry education at secondary school (Czech Republic, Slovak Republic)
2. **Nadia Venskuvienė.** Higher order thinking task and question application in the world cognition lessons in primary forms (Lithuania)
3. **Ilva Cinite, Girts Barinovs.** Measuring knowledge growth for individual bachelor students at science courses of university of Latvia (Latvia)
4. **Teresa Conceição, Mónica Baptista, João Pedro da Ponte.** Lesson study as a process for developing the pedagogical content knowledge of pre-service physics and chemistry teachers (Portugal)
5. **Pavels Pestovs, Ilze Saleniece, Dace Namsone.** Science large-scale assessment alignment to the revised science curriculum (Latvia)

15:30-17:00

SECTION 2

S&T Education Approaches and Praxis

(Fourth Floor, Room 412, Library of Siauliai University, Vytauto Street 84, Šiauliai)

Chairmen: Mónica Baptista, Tadar Lakhvich

1. **Dace Bertule, Girts Burgmanis, Dace Namsone.** Piloting multidisciplinary fieldwork project "Forest" (Latvia)
2. **Ching-Ching Cheng, Kuohung Huang.** Computer programming learning activities in preschools: an exploratory study (Taiwan)
3. **Renata Holubová, Anna Krčmářová, Lukáš Richterek, Jan Říha.** Analysis of some selected force concept inventory tasks using eye-tracking and correlation with scientific reasoning skills (Czech Republic)
4. **Marie Hubálovská, Štěpán Hubálovský, Pavel Krejčí.** The construction activity as a method of polytechnic and science learning (Czech Republic)
5. **Loreta Juškaite.** Data mining in education: online testing in latvian schools (Latvia)
6. **Virginija Šidlauskienė.** Subtile gender bias in academia (Lithuania)
7. **Anna Klim-Klimaszewska.** Magnet and its application. Physics education in kindergarten (Poland)

POSTER PRESENTATIONS

(Fourth Floor, Hall, Library of Siauliai University, Vytauto Street 84, Šiauliai)

1. **Malgorzat Bartoszewicz, Grzegorz Krzyško.** Popularization of chemistry in non-formal education (Poland)
2. **Rita Makarskaitė-Petkevičienė.** Students' natural science contest: task analysis in the aspect of knowledge and understanding (Lithuania)
3. **Violeta Šlekienė.** The usage of STEAM program in developing and improving of students' experimental skills (Lithuania)
4. **Ariane Baffa Lourenço, Salete Linhares Queiroz, Armin Weinberger.** Pre-service chemistry teachers' beliefs about argumentation and argumentative practice (Brazil, Germany)
5. **Tzu-Yang Huang, Chih-Hsiung Ku.** The public understanding of emerging technology in East Taiwan area: an example of nanotechnology (Taiwan)
6. **Elena Vasilevskaya, Svyatlana Vashchanka, Natalia Boboriko.** Rating score system and academic achievements of students: Experience of the Chemistry Faculty of the Belarusian State University (Republic of Belarus)

Tuesday
18th June 2019

08:00 —
18:30/19.00



OUTDOOR
WORKSHOP/EXCURSION
Science & Technology EDUCATION

Wednesday
19th June 2019

08:45-10:00

PLENARY MEETING 3

(Second Floor, Room 205, Library of Siauliai University, Vytauto Street 84, Šiauliai)

Chairmen: Metka Kordigel-Aberšek, Martin Bilek

Solange Locatelli. Metacognitive strategies in science and technology education: Limits and possibilities (Brazil)

10:00-10:30



COFFEE BREAK

10:30-12:00

SECTION 3

General S&T Education Issues

(Fourth Floor, Room 411, Library of Siauliai University, Vytauto Street 84, Šiauliai)

Chairmen: Angela James, Tamara N. Rončević

1. **Saša A. Horvat, Dušica D. Rodić, Tamara N. Rončević, Mirjana D. Segedinac.** Validation of method for the assessment of cognitive complexity of chemical technology problem tasks (Republic of Serbia)
2. **Dagnija Cedere, Rita Birzina, Tamara Pigozne, Elena Vasilevskaya.** How to make learning in STEM meaningful for the millennium generation (Latvia, Republic of Belarus)
3. **Liliana Măță, Roxana Maria Ghiățu.** Teachers' attitudes towards unethical use of mobile technologies in higher education (Romania)
4. **Liliana Măță, Ionuț Stoica.** Measuring attitudes of biology teachers towards internet (Romania)
5. **Msizi Mbali, Angela James.** A tutor's personal and professional experiences of tutoring in a science teacher education module (South Africa)

10:30-12:00

SECTION 4

S&T Education Approaches and Praxis

(Fourth Floor, Room 412, Library of Siauliai University, Vytauto Street 84, Šiauliai)

Chairmen: Mónica Baptista, Metka Kordigel-Aberšek

1. **Karel Kolar, Martin Bilek, Katerina Chroustova, Jiri Rychtera, Veronika Machkova.** Calcium cycle in chemistry teaching at the lower secondary school (Czech Republic)
2. **Metka Kordigel Aberšek, Zvonka Cencel, Boris Aberšek, Andrej Flogie.** Metacognitive model for developing science, technology and engineering functional literacy (Slovenia)
3. **Irina Kryazheva.** Physical component of tasks in chemistry (Russian Federation)
4. **Tetiana Mazurok, Volodymyr Chernykh.** Knowledge-based approach to adaptive selection of equipment for teaching robotics (Ukraine)
5. **Stanislawa K. Nazaruk, Joanna Marchel.** Effectiveness in the development and acquisition of mathematical skills in children in rural and urban preschools (Poland)
6. **Mónica Baptista, Iva Martins, Teresa Conceição.** Multiple representations in development of students' cognitive structures about the saponification reaction (Portugal)

12:00-14.00



LUNCH

14:00-15:00

PLENARY MEETING 4

(Second Floor, Room 205, Library of Siauliai University, Vytauto Street 84, Šiauliai)

Chairmen: Metka Kordigel-Aberšek, Martin Bilek

Todar Lakhvich. One chemistry – two meanings. Science and education: Comparative analysis of the roles, presentation and applications (Republic of Belarus)

15:00-15:30



COFFEE BREAK

15:30 -17:00

SECTION 5

General S&T Education Issues

(Fourth Floor, Room 411, Library of Siauliai University, Vytauto Street 84, Šiauliai)

Chairmen: Solange Locatelli, Malgorzata Nodzynska

1. **Giovanni Scataglia Botelho Paz, Solange W. Locatelli.** Metacognitive incidents manifested by students of youth and adult education in an investigative activity (Brazil)
2. **Lukáš Richterek, Jan Říha.** European augmented reality training needs (Czech Republic)
3. **Antti Rissanen, Kalle Saastamoinen.** Assessment in cadets' technology course (Finland)
4. **Hae-Ae Seo, Jae-Ho Sim.** Individual behaviors as motivation, task commitment, and leadership exhibited by science gifted students at science gifted education center and its implications for differentiated instruction (Republic of Korea)
5. **Youngjoon Shin, Hae-Ae Seo, Jun-Euy Hong.** Development of an assessment tool for positive experiences about science (PES) (Republic of Korea)
6. **Sergei Teleshov, Elena Teleshova.** The international year of the periodic table: an overview of events before and after the creation of the periodic table (Russian Federation)

15:30 -17:00

SECTION 6

S&T Education Approaches and Praxis

(Fourth Floor, Room 412, Library of Siauliai University, Vytauto Street 84, Šiauliai)

Chairmen: Saša Horvat, Monica Baptista

1. **Kalle Saastamoinen, Antti Rissanen.** Teaching systems that can mimic different teaching-learning environments (Finland)
2. **Timur Sadykov, Hana Čtrnáctová.** The students' opinions toward interactive lectures (Czech Republic)
3. **Ivana Sotáková, Mária Ganajová, Mária Babinčáková.** The effectiveness of implementing inquiry activities into the teaching process in the phase of revising and deepening the learning content (Slovak Republic)
4. **Louis Trudel, Abdeljalil Métioui.** Guidelines in the elaboration of a teaching sequence of kinematics according to a historical approach (Canada)
5. **Louis Trudel, Abdeljalil Métioui.** High school students' models of relative motion in physics (Canada)
6. **Tamara N. Rončević, Željka Đ. Ćuk, Dušica D. Rodić, Mirjana D. Segedinac, Saša A. Horvat.** Students' abilities of reading images in general chemistry: the case of realistic, conventional and hybrid images (Republic of Serbia)

Discussion

18:30-22.00



SYMPOSIUM DINNER

Thursday
20th June 2019

08:45-10:30

INTERACTIVE PLENARY

(Second Floor, Room 205, Library of Siauliai University, Vytauto Street 84, Šiauliai)

*Moderator: **Dušica Rodič, Boris Aberšek***

Andris Broks. Changes all around us and within science education (Latvia)

Reviews to the theme:

Tamara Rončević, Republic of Serbia

Angela James, South Africa

Kuohung-Huang, Taiwan

Hae-Ae Seo, South Korea

Louis Trudel, Canada

Discussion

10:30-11:00



COFFEE BREAK

11:00-12:30

SECTION 7

S&T Education Challenges and Insights

(Second Floor, Room 205, Library of Siauliai University, Vytauto Street 84, Šiauliai)

*Chairmen: **Louis Trudel, Hae-Ae Seo***

1. **Martin Bilek, Katerina Chroustova, Jiri Rychtera, Veronika Machkova, Karel Kolar, Jitka Štrofova, Radovan Sloup, Milan Šmidl, Iveta Bartova.** Teachers' view on the lower secondary chemistry curriculum in the Czech Republic (Czech Republic)
2. **Lay Yoon Fah, Ng Khar Thoe, Khoo Chwee Hoon, Chan Sane Hwui.** Examining the psychometric properties of a Malaysian relevance of science education (MROSE) questionnaire using partial least squares structural equation modeling (PLS-SEM) (Malaysia)
3. **Thuthukile Jita, Loyiso C. Jita.** A descriptive analysis of preservice teachers' opportunities to learn to teach science using ICTS in South Africa (South Africa)
4. **Vincentas Lamanauskas, Dalia Augienė.** Primary school fourth grade students' ecological attitude diagnostics (Lithuania)
5. **Malgorzata Nodzyska.** Analysis of Piaget's theory influence on the teaching of science (Poland)

Discussion

12:30-13:00

SYMPOSIUM CLOSING

(Second Floor, Room 205, Library of Siauliai University, Vytauto Street 84, Šiauliai)

What Do We Do NEXT?

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