



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

SYMPPOSIUM PROGRAMME



Šiauliai, Lithuania

Symposium Organizer

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

Organizing Committee

Chairman

Prof. dr. Vincentas Lamanauskas, *Šiauliai University & SMC „Scientia Educologica“, Lithuania*

Members

Assoc. Prof. Dalia Augienė, *Šiauliai University, Lithuania*

Prof. Dr. Dagnija Cedere, *University of Latvia, Latvia*

Prof. Dr. Daiva Malinauskienė, *Šiauliai University, Lithuania*

Assoc. Prof. Rita Makarskaitė-Petkevičienė, *Vilnius University, Lithuania*

Dr. Laima Railienė, *SMC „Scientia Educologica“, Lithuania*

Prof. Dr. Miiia Rannikmae, *University of Tartu, Estonia*

Judita Stankutė, *SMC „Scientia Educologica“, Lithuania*

Assoc. Prof. Dr. Violeta Šlekienė, *Šiauliai University, Lithuania*

Dr. Elena Vasilevskaya, *Belarusian State University, Republic of Belarus*

Scientific Committee

Prof. Dr. Boris Aberšek, *University of Maribor, Slovenia*

Prof. Dr. Agnaldo Arroio, *University of São Paulo, Brazil*

Prof. Dr. Martin Bilek, *Charles University, Czech Republic*

Prof. Dr. Andris Broks, *University of Latvia, Latvia*

Prof. Dr. Marco Antonio Bueno Filho, *Federal University of ABC, Brazil*

Dr. Paolo Bussotti, *University of Udine, Italy*

Prof. Dr. Muammer Çalik, *Karadeniz Technical University, Turkey*

Prof. Dr. Dagnija Cedere, *University of Latvia, Latvia*

Dr. Vaitsa Giannouli, *Bulgarian Academy of Sciences, Bulgaria*

Prof. Dr. Metka Kordigel-Aberšek, *University of Maribor, Slovenia*

Dr. Todar Lakhvich, *Belarusian State Medical University, Republic of Belarus*

Prof. Dr. Vincentas Lamanauskas, *Šiauliai University, Lithuania*

Dr. Laima Railienė, *SMC „Scientia Educologica“, Lithuania*

Dr. Uladzimir Slabin, *University of Oregon, USA*

Assoc. Prof. Dr. Violeta Šlekienė, *Šiauliai University, Lithuania*

Prof. Dr. Milan Turčani, *Constantine the Philosopher University, Slovakia*

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)

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 Varpučianskiė**

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 Lamanauskas**

10:00-12:00

PLENARY MEETING 1

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

Chairmen: **Tiia Rüütmann, Vincentas Lamanauskas**

1. **Tiia Rüütmann.** Engineering pedagogy science as the contemporary basis of effective teaching science and technology (Estonia)
2. **Dusica Rodić.** 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 Šiauliai 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 Šiauliai University, Vytauto Street 84, Šiauliai)
Chairmen: Mónica Baptista, Todar 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 Šiauliai University, Vytauto Street 84, Šiauliai)

- 1. Małgorzat Bartoszewicz, Grzegorz Krzyśko.** 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

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 Mătă, Roxana Maria Ghițău.** Teachers' attitudes towards unethical use of mobile technologies in higher education (Romania)
4. **Liliana Mătă, 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 Šiauliai 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. Stanisława 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 Šiauliai 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 Šiauliai University, Vytauto Street 84, Šiauliai)

Chairmen: Solange Locatelli, Małgorzata 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 Šiauliai 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 Métiouli.** Guidelines in the elaboration of a teaching sequence of kinematics according to a historical approach (Canada)
- 5. Louis Trudel, Abdeljalil Métiouli.** 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 Šiauliai 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 Šiauliai 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 Nodzynska.** Analysis of Piaget's theory influence on the teaching of science (Poland)

Discussion

12:30-13:00

SYMPORIUM CLOSING

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

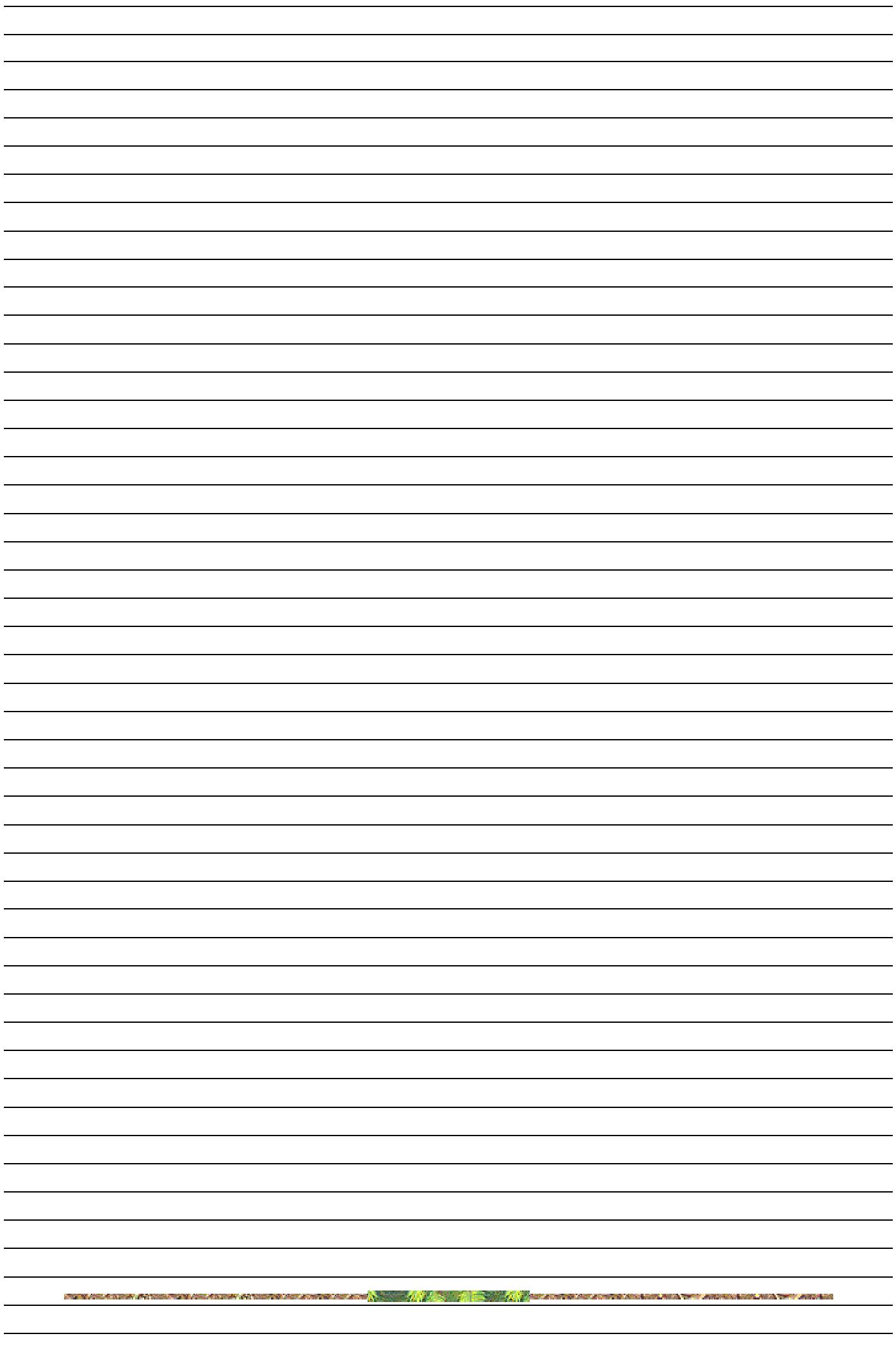
What Do We Do NEXT?

MAIN SPONSORS

Scientific Methodical Centre "Scientia Educologica" & Scientia Socialis Ltd., Lithuania

"Mokslo Lietuva" is the informational sponsor of the symposium.

MOKSLO LIETUVA





- Šiauliai University



- Bus station

BalticSTE2019 Symposium Programme
© SMC „Scientia Educologica“,
Šiauliai, 2019