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INTERNATIONAL UNION OF
PURE AND APPLIED CHEMISTRY

15 European Conference on Research in Chemical Education

ECRICE 2020 Webinar

Excellence and Innovation in Chemistry Teaching & Learning

Abstract Book

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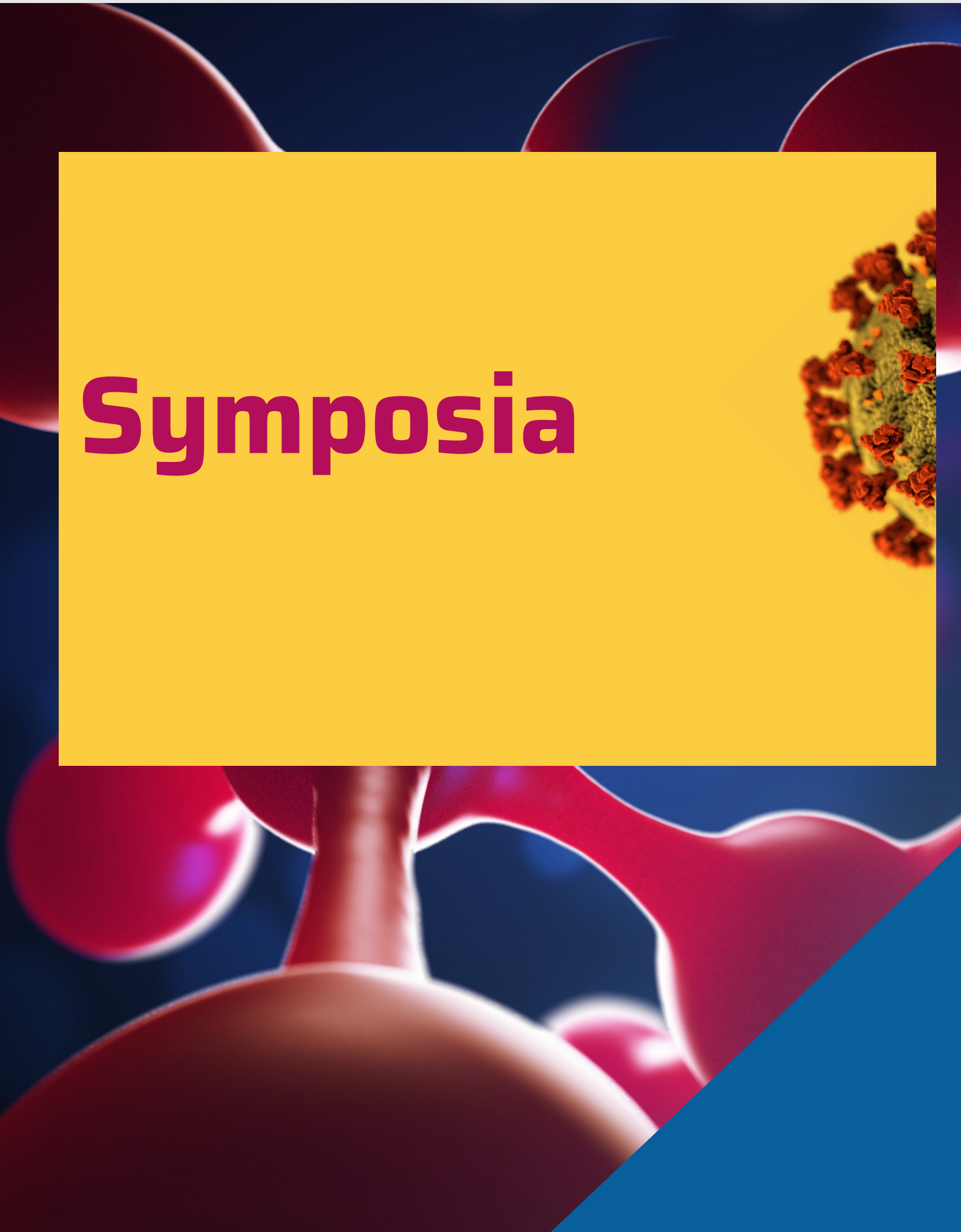
Symposia



SYMPOSIA #1

5 | Prof. Almond Matthew
Embedding Transferable Skills into the Chemistry Curriculum

6 | Dr. Hayes Sarah
An examination of participants' experiences of a chemistry communication and engagement module

7 | Prof. Markic Silvija
“It`s all about the matter” – language sensitive and language supportive skills

8 | SYMPOSIA #2
Systems Thinking in Chemistry Education

9 | Dr. Ho Felix
Conceptualizing and implementing systems thinking in chemistry education: where are we now, and where are we going?

10 | Prof. Matlin Stephen
Reorienting the future of chemistry through systems thinking in chemistry education

11 | Mr. Apotheker Jan
Identifying Systems Thinking Components in the School Science Curricular Standards of Four Countries

12 | Dr. Rosenfeld Sherman
Addressing the human element in systems thinking for chemistry education with the

13 | SYMPOSIA #3
Developing conceptual understanding in chemistry through technology or instructional measures

14 | Dr. Hundertmark Sarah
Developing conceptual understanding in chemistry through peer interaction

15 | Dr. Zohar Asnat R.
Developing conceptual understanding in chemistry through embodied experiences

16 | Prof. Graulich Nicole
Effects of Dynamic and Static Cueing in Instructional Videos on Students' Conceptual Understanding in Organic Chemistry

17 | Mr. Aviran Ehud
Implementation of a personalized online learning system for creating hybrid chemistry learning and teaching in the chemistry class

18 | SYMPOSIA #4
Fostering talented students in science – goals, approaches and challenges

19 | Dr. Marchak Debora
Facilitating Personalized CBL in Chemistry - A Retrospective Evaluation on the National Projects Competition

20 | Maija Aksela
Towards student-centred solutions in science education: Global Challenges Course for You

21 | Parchmann Ilka
Programs on fostering talents as catalysts for system developments

22 | SYMPOSIA #5
Active learning as a neuro-pedagogical approach in chemistry class

23 | Dr. Marchak Debora
Crafting Molecular Geometries: implications of neuro-pedagogy on teaching chemical content.

24 | Dr. Shvarts-Serebro Inna
Bringing the neuro-pedagogy into the chemistry class

25 | Dr. Radoszkowicz Limor
Educational Escape Rooms in Chemistry

SYMPOSIA #6

26 | Dr. Geva Merav
E-Leaning in Chemistry Education: Implemntation of COBLE 2014-2020

27 | Dr. Eidelman Rachel-Rosanne
Promoting Self-Regulated Learning by designing a Chemistry Online Blended Learning Environment

28 | Dr. Shwartz Yael
E-Leaning in Chemistry Education: Self-Regulated Learning in a virtual classroom

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29 | Prof. Hofstein Avi
The Development of High-Order Learning Skills in Inquiry-type Chemistry Laboratory

30 | Dr. Mamlok-Naaman Rachel
The development of the inquiry laboratories: The nature of the experiment

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Implementation of the inquiry-type experiments in Israel

Making Science and Chemistry Accessible to Students with Blindness or Low Vision

Strand number: 09

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Science knowledge is an important part of daily life for some people including those who are blind or have low-vision (BLV). The mission of science education is to prepare individuals who would develop a certain level of scientific understanding and basic scientific process skills via practical works in and out of school. However, due to the barriers created unintentionally in learning spaces in school environments, BLV students develop low interest towards science and mathematics (Maguvhe, 2015). This low interest prevent BLV students going into STEM-related professions in the future. If educational settings are adapted to the needs of BLV students, they may develop not only sound understanding of everyday science concepts but also develop positive attitudes towards science. Therefore, it is important to focus on making science accessible to students with BLV via inclusive educational environments. Inclusive education refers to special education practices based on the principle of providing education to individuals with special educational needs along with their peers in mainstream schools or through extra-curricular activities provided through non-formal education with additional educational support (Pavri and Luftig, 2000). The idea of inclusion assumes that every student has equitable access to education and that schools organize learning spaces that accommodate everyone (Gudjonsdottir and Oskarsdottir, 2016).

Learning science requires intensive use of our senses, particularly vision. However, some of the individuals, have difficulty in using their eyes due to visual impairments they have. Although there are different definitions, visual impairment is as an overall term that encompasses all people with decreased vision, regardless of the severity of their vision loss. In terms of educational purposes, the visual impairment is described as children whose visual condition in such that special provisions are necessary for their successful education. In this presentation, visual impairments will be defined in terms of different perspectives and visually impaired students' needs in learning science and chemistry will be discussed. In addition, sample learning materials which was developed to meet those students' needs will be presented and discussed. Recommendations will be made how to make science and chemistry education accessible to students with BLV.

References:

Gudjonsdottir, H. & Oskarsdottir, E. (2016). Inclusive education, pedagogy and practice. In Markic, S. and Abels, S. (ed.), *Science education towards inclusion* (pp. 7–22), New York: Nova Science Publishers.

Pavri, S. & Luftig, R. (2000). The social face of inclusive education: are students with learning disabilities really included in the classroom? *Preventing School Failure: Alternative Education for Children and Youth*, 45(1), 8–14, https://doi.org/10.1080/10459880109599808

Maguvhe, M. (2015). *Teaching science and mathematics to students with visual impairments: reflections of a visually impaired technician*. African Journal of Disability, *4*(1), Art.#194, 6 pages, http://dx.doi.org/10.4102/ajod.v4i1.194