ICCE 2024
Pattaya, THAILAND

The 27th IUPAC International Conference on Chemistry Education

Royal Cliff Grand Hotel, Pattaya, Thailand

15-19 July, 2024

"The Power of Chemistry Education for Advancing SDGs"

Abstract Book



Welcome Message from Chair of 27th IUPAC International Conference on Chemistry Education (ICCE2024)



Dear Colleagues

On behalf of the organizing committee of the 27th IUPAC International Conference on Chemistry Education (ICCE2024), it is my great pleasure to invite you to participate in ICCE2024 during July 15-19, 2024, in Pattaya, THAILAND - The land of smile and a hub of ASEAN.

With the theme of this conference, "Power of Chemistry Education for Advancing SDGs", it aims to provide a platform for educators, practitioners, teachers, chemists, and scientists around the world to interface with pioneers & leaders in sustainable development. It is the moment for us to learn from the present and past while we are charting our future.

We strongly believe that ICCE2024 will create a remarkable impact and legacy across the region and the world in tackling the global challenges in chemistry education and paving our way to achieve Sustainable Development Goals.

We are looking forward to giving a warm welcome to you, your family, and colleagues at ICCE2024 in Pattaya, a city at the center of Thailand's Eastern Economic Corridor which is full of life and excitement. We hope that you will find the conference both enjoyable and valuable. We thank you in advance for participating and contributing to the success of the event. Please mark your calendar on July 15-19, 2024.

With best wishes

Prof. Dr. Supawan Tantayanon
Chair, 27th IUPAC International Conference on Chemistry Education (ICCE2024)

Welcome Message from President of Chemical Society of Thailand



It is our pleasure to invite you to the **27th International Conference on Chemistry Education (ICCE 2024)** which will be held at **Royal Cliff Grand Hotel, Pattaya, Chon Buri, Thailand** during **July 15-19, 2024**. The scientific program will extend to full five-days program under the theme **"Power of Chemistry Education for Advancing SDGs"**. Not only overseas experts are invited to give their lectures during the conference, we also create several sessions to cover the latest innovation and knowledge. With the state-of-the-art lectures as well as Free Paper presentation, we expect the highest satisfaction from all participants.

This conference will provide a wonderful event for sharing and refreshing your knowledge and we wish you can enjoy this familiar place, meet your old friends and have a good time together in Pattaya.
Look forward to seeing you, July 15-19, 2024

Prof. Dr. Vudhichai Parasuk
President of Chemical Society of Thailand

Program at a Glance



Time/Date	15 Jul 2024		16 Jul 2024				17 Jul 2024			18 Jul 2024				19 Jul 2024		
	Registration 7.30-16.00		Registration 8.00-16.00				Registration 8.00-14.00			Registration 8.00-16.00				Registration 8.00-14.00		
9.00-10.40	Parallel Sessions	Symposium A	Parallel Sessions	Symposium A	Symposium B	Symposium D	Parallel Sessions	Symposium D	Symposium E	Parallel Sessions	Symposium C	Symposium F	Workshop D	Parallel Sessions	Workshop E	Workshop F
10.40-11.00	Break		Break				Break			Break				Break		
11.00-12.00	Parallel Sessions	Symposium A	Parallel Sessions	Symposium A	Symposium B	Symposium D	Parallel Sessions	Symposium D	Symposium E	Parallel Sessions	Symposium C	Symposium F	Workshop D	Parallel Sessions	Workshop E	Workshop F
12.00-12.40										Plenary 4 (12.00-12.40)						
12.40-14.00	Lunch		Lunch				Lunch			Lunch				Lunch		
14.00-14.40	Parallel Sessions	Symposium A	Parallel Sessions	Workshop A	Symposium B	Symposium E	Excursion			Parallel Sessions	Symposium C	Symposium F	Workshop D	Closing		
14.40-15.40																
15.40-16.00	Break		Break							Break						
16.00-17.00	Opening		Parallel Sessions	Workshop A	Symposium B	Symposium E				Parallel Sessions	Symposium C	Symposium F	Workshop D			
17.00-17.40	Plenary 1		Plenary 3 (17.20-18.00)							Special Event 2 (Panel Discussion) (17.20-19.00)						
17.40-18.20	Plenary 2															
18.20-21.00	Welcome Reception		Poster Presentation Section1 (18.00-19.30) Poster Presentation Section 2 / Special Event 1 (19.30-21.00) Cocktail Reception							Conference Banquet (19.00-21.00)						

ICCE 2024 Program Themes

1. Chemistry Education in Informal Education and Life-long Learning Context
2. Redesigning Chemistry Laboratory Teaching
3. Innovative Technology for Chemistry Education
4. Chemistry and Science Teacher Education and Continuous Professional Development
5. Chemistry and Chemical Science Education for Environmental and Social Sustainability
6. Policy, Reform, and Quality Assurance in Chemistry Education
7. Ethics, Diversity, Equity and Inclusion in Chemistry Education
8. Emerging Educational Trends in Chemistry in the 21st Century

Symposia

Symposium A: The 12th International Symposium on Microscale Chemistry (12ISMC)

Symposium B: Modeling-Based Instruction and Assessment for Chemistry Education

Symposium C: Connecting Competency-based Chemistry Education and the Challenge of Sustainable Development

Symposium D: Advancing Chemical Safety and Security Education

Symposium E: (Join Education and Industry Symposium) System Thinking in Chemistry for Sustainability

Symposium F: Green and sustainable chemistry in the Chemistry Curriculum : Advances and Models

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Chemistry Teachers' Experiences and Views on Practical Activities and Green Chemistry Revealed by IUPAC Global Survey – Türkiye, Nepal and Indonesia

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Practical activities are a fundamental aspect of chemistry. They have been found to be effective in conveying macroscopic level representations, developing science process skills and improving content knowledge. However, it is still questionable how well they are implemented in high school chemistry classes. This is due to potential limitations such as a lack of physical space, materials, and resources, as well as inadequate teacher training. As the world increasingly adopts a green and sustainable approach, chemistry is taking the lead. Therefore, it is important to observe the reflections in chemistry education. As part of a chemistry education project funded by IUPAC, a global survey was developed to assess teachers' implementation of practical activities relevant to green and sustainable chemistry in different countries. As part of this symposium, we present here how three countries (Türkiye, Nepal, Indonesia) adapted and distributed the survey to high school chemistry teachers working at different geographical regions and types of schools, through the researchers' networks. In some instances, individual and group interviews were also conducted. The analysis revealed the views and experiences of chemistry teachers in implementing practical activities, both in general and specifically related to green and sustainable chemistry.