Editorial

On November 30th, 2022 ChatGPT was released to the public and I still remember my scepticism, when my colleague showed it to me. It did not take long, and I and the likes of me quickly realized that a remarkable element had entered our lives which would have an immense impact on various aspects of our daily routine. Subsequent fast development of diverse AI-powered digital assistants was incredible and so it was a rather easy decision for the Division of Chemical Education to focus on the next Future of Chemical Education symposium and this *CHIMIA* issue on '*AI and Other Advances in Chemical Education*'. The event took place on September 4th, 2025, at the Irchel Campus of the University of Zurich alongside the Fall meeting of the Swiss Chemical Society. We welcomed around 35 participants, who could witness five talks dealing with different aspects of using AI in teaching chemistry. We have thus seen how AI can 'catalyse' the development of new courses (Philippe Schwaller, EPFL) or support the grading of handwritten exams (Gerd Kortemeyer, ETHZ). Furthermore, it might be implemented in modelling and simulation of reacting systems for educational purpose (Shahab Eghbali, COMSOL Multiphysics). In order to integrate AI appropriately into education, it is necessary to familiarize oneself with the experiences of younger generations with AI (Silvija Markic, LMU Munich). Finally, it was demonstrated that it is still possible to deliver a high-quality teaching without any use of artificial intelligence as presented by the winners of the Balmer prize 2025 (Daniel Brunner, Thomas Hari, Gymnasium Thun). Some of the speakers agreed to summarize their talks also in an article in the *CHIMIA* issue which you hold in your hands.

This is my third editorial in five years and I usually struggle with it, because I just simply believe that someone will read it and I do not wish to make a fool of myself. I felt somewhat relieved when I realized that it will be perfectly justified if AI significantly contributes to my efforts (*i.e.* I provide the prompt, AI delivers the editorial, whereas it should significantly resemble the style of Jan Cvengros). It is about *AI-assistance*, isn't it? But do we really want to go this way? One of the strong messages of the symposium relates to the danger of losing our personal identity if we resort to present AI-formulated phrases as our own thoughts. Especially, in relation to (chemistry) education, it is a crucial role of the teachers, lecturers, and educators to emphasize the risks related to delegating the tasks to AI.

The cover picture of this issue accurately mirrors one of the current scenarios of learning under the influence of artificial intelligence. I admit without any shame that the image was created by AI, but I seriously contributed with multiple instructions to shape the final product. In fact, the ability of formulating the right prompts efficiently is a challenging part of the education process. A simple request of depicting a youngster using AI for learning expanded to a dialogue of a comparable length as this editorial. Looking at the periodic system on the cover it is obvious that AI is still prone to hallucinations, which can be disclosed only if the product is confronted with knowledge or facts. The final message conveyed by the image is the undisputable fact, that those who are being educated are typically far more familiar with AI compared to those who are supposed to educate them. Unfortunately, they tend to succumb to temptation to reduce their burden by delegating their duties to artificial intelligence. Therefore, I would like to thank all teachers and lecturers, who address the potential of AI in teaching critically, and motivate those, who may still retain their scepticism. Artificial intelligence will not replace us, but the future will belong to people who can apply it efficiently.

Jan Cvengros
ETH Zurich

Jan Cvengros was born in Slovakia and studied organic chemistry at Comenius University in Bratislava. After his PhD at the University of Cologne and a postdoctoral stint at the University of Milan, he moved to ETH Zurich as a postdoctoral fellow and an independent researcher before taking up his current position as a lecturer. In 2020 he became the president of the Division of Chemical Education of the Swiss Chemical Society.

Cover image: Generated by OpenAI's DALL·E 3 model integrated into ChatGPT. For information about the prompt, see the text above.

The *CHIMIA* Editorial Board is very grateful to Dr. Jan Cvengros for his great efforts in organizing this issue on *AI and Other Advances in Chemical Education* showcasing the approaches, benefits, and challenges on the use of AI in teaching and studying chemistry.