**Laudation for Dr Alex Kummer**

Ladies and Gentlemen,
Distinguished Guests,
Dear Colleagues,

I am pleased to have the opportunity to recognise Dr Alex Kummer, Associate Professor in the Department of Process Engineering, Faculty of Engineering, at the University of Pannonia, as well as the Hungarian recipient of the 2026 Young Researcher Award from the Visegrád Group Academies.

This award recognises a young researcher whose work already demonstrates outstanding scientific quality and international visibility, and a clear promise of future impact. Dr Kummer's career exemplifies how deep engineering knowledge, industrial experience, and modern data-driven methods can be brought together to address complex and highly relevant problems in process engineering.

Dr Kummer began his academic journey at the University of Pannonia, where he completed his studies in chemical engineering. During his thesis work, under the supervision of Dr Tamás Varga, he focused on predicting and preventing reactor runaway phenomena. This topic later became the foundation of his doctoral research and one of the defining pillars of his scientific identity.

After gaining valuable industrial experience at Nitrogénművek Ltd, he returned to academic research with a clear ambition to make a lasting professional contribution. His PhD dissertation, entitled Development and Application of Thermal Runaway Criteria, was defended in 2021 and has since become internationally recognised. One of its most remarkable outcomes was the formulation of two new runaway criteria, now known in the literature as the Kummer–Varga criteria. For a young researcher, having results that are published and cited, and also incorporated into the conceptual vocabulary of an international research field, is an exceptional achievement.

Dr Kummer's work is especially valuable because it builds bridges between chemical engineering, systems engineering, artificial intelligence and machine learning. Such an interdisciplinary approach is now essential in the field of engineering sciences, where the complexity of industrial systems requires new methods of modelling, prediction, control and decision support.

In recent years, his research has increasingly focused on artificial intelligence solutions for industrial and process engineering applications. This important turn was initiated and strongly supported by Professor János Abonyi, whose scientific vision and mentorship opened new research directions for Dr Kummer in data science, machine learning, deep learning and systems engineering.

Dr Kummer's research activity is supported by an impressive publication record. He has published over thirty impact-factor journal papers, including several in leading Q1 journals. These indicators reflect not only his productivity, but also the international relevance and scientific influence of his research.

Dr Kummer is also a scientist whose work is closely connected to industrial challenges. He has participated in research and development projects with industrial partners and currently leads data science and process engineering tasks in long-term collaborations with partners such as

eCon Engineering. These activities show that his research is theoretically sound, practically meaningful and innovation-orientated.

Another important aspect of his profile is his role as a community builder and mentor. Since January 2024, he has led the Data-Centric Systems Engineering Research Group at the University of Pannonia. In this role, he works with PhD students and undergraduate researchers, supports scientific student projects, and plays an active role in developing the next generation of engineers and researchers.
Dr Kummer's achievements have already been recognised with several prestigious awards and scholarships, including the János Bolyai Research Scholarship, the Academy Youth Award from the Hungarian Academy of Sciences, and the VEAB Outstanding Young Researcher Award.

Ladies and Gentlemen,
Dr Kummer's career to date demonstrates an exceptional combination of scientific depth, methodological openness, industrial relevance and academic leadership.

It is therefore a true pleasure to congratulate him on receiving the 2026 Young Researcher Award of the Visegrád Group Academies. We wish him continued success, inspiring collaborations, and many more achievements in his scientific career.
Congratulations!

Laudation written by Dr Sándor Németh, Dean of the Faculty of Engineering, University of Pannonia