

FOREWORD

Dear reader, you are holding the 12th volume of the *Műszaki Tudományos Közlemények* (Papers on Technical Science) series.

The ten publications that make up this volume represent the completed material of the studies presented during the 20th Technical Scientific Conference. It was not only the conference that celebrated a round number in 2019. In the same year we also celebrated - with confidence, faith and an undeniable awareness of the importance of our scientific and organizational work - 160 years since the founding of the Transylvanian Museum-Society. During those 160 years, the Society has not diverged from the original intentions of its Founder, Count Mikó Imre. The goal of the Transylvanian Museum-Society is no less than the preservation of our Hungarian language in the Carpathian basin. We as Hungarians in the Carpathian basin and as people who desire to practice science, know that our technical scientific language is an immense treasure, and that cultivating it, developing it and most of all preserving it is more than just an obligation.

The particular structure of our language, being unlike any other, also makes our way of thinking unique, and that would be lost without our native tongue. This 12th volume is proof of this constructive desire and good will to preserve our language.

The ten studies by 21 authors published in this volume – as has always been the case with our series – represent almost every field of technical science: Material Sciences, Mechatronics, Construction, Informatics, CAD-applications, General Mechanics, Manufacturing Science and Technical Management are all present in the volume.

Therefore, first of all we would like to thank the 21 authors who have shared their knowledge and published their results in the pages of this volume. We are grateful for their participation in the conference held in Cluj-Napoca/Kolozsvár on November the 23rd 2019, for the high level of their presentations, the debates and most of all for their championing of science in the Hungarian language.

We are also grateful for the work of the reviewers and for everyone who contributed to the publishing of this volume.

According to our traditions, the *Műszaki Tudományos Közlemények* series is a means of allowing young researchers to partake in Hungarian scientific life in the Carpathian basin. Through its activities they can become familiar with each other's work in different fields of interest and they can connect with each other to pursue the noble goal of future collaboration.

Besides using the Hungarian scientific language we would also like to make our results visible to the global scientific community. Therefore the contents of this volume, besides being accessible in Hungarian in the TMS Electronic library: <https://www.eme.ro/publication-hu/mtk/mtk-main.htm> and the Transylvanian Digital Database: <https://eda.eme.ro/handle/10598/28082>, will also be accessible in English in the

De Gruyter Sciendo database: <https://content.sciendo.com/view/journals/mtk/mtk-overview.xml>.

This volume is also published in collaboration with the Óbuda University, as such the series' ISSN number comes from the TMS, its ISBN number from the Óbuda University.

The comprehensive, inter-disciplinary character of the volume encourages us to recommend it to researchers, BSc, MSc and PhD students, factory engineers and to everyone who is interested in science.

Cluj-Napoca, February 2020.

Representing the Transylvanian Museum-Society's Department of Technical Sciences

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