



## EDITORIAL: 2020 FIRST VOLUME OF ACTA MARISIENSIS. SERIA TECHNOLOGICA

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### Welcome to the 2020 first issue of the Acta Marisiensis. Seria Technologica!

This writing includes some news with reference to editorial aspects, with the aim to further increase the quality of the published papers. Scienco, a well-known academic editor owned by De Gruyter, who publishes the journal, also requires some of the implementations. In particular, the revision process was strengthened, assigning the manuscript to the reviewers who have previously agreed to be involved in the revision of the specific manuscript following a request sent by the Editorial Board. The review of each single manuscript is based on the feedback received from reviewers, who can accept or reject requests to perform this highly valued and appreciated voluntary activity. This process is expected to ensure superior quality of the review procedure, as reviewers can select the manuscript based on their scientific interest, experience or other concerns. Further actions in this regard are under consideration and will be shared with readers and potential authors as soon as they are defined. It is understood that the implementation of these actions requires more time for the entire review process; therefore, potential authors will be asked to send their contributions in a timely manner, allowing a regular and systematic evaluation. Moreover, it will be appreciated to receive the contributions in the accordance with the Template available on the Journal web page.

The newly appointed Managing Editors, Assoc. Prof. Dr. habil. Ildiko Peter and Assoc. Prof. Dr. German-Sallo Zoltan together with the Editor in Chief, Prof. Dr. habil. Liviu Moldovan, will do their best to ensure the high quality of the publications and increase

the visibility of the research activity carried out in the two involved departments of the Faculty of Information Engineering and Technology, namely the Department of Engineering and Industrial Management and the Department of Electrical and Computer Engineering.

Another innovative aspect is the presence of an “Editorial”, of which you are reading the first appearance! It was devised to be used by the Editorial Board to communicate with the readers and share information about the journal and related topics, for example to provide a brief description of the articles published in the current issue, etc. However, for a timely information, please consult the Journal website as well.

This volume contains 9 articles from international authors as well as authors of both departments. This is another new aspect, since so far the number of articles in each volume was eight. Considering the odd number of publications, it is possible to achieve equal representation of the two departments, for example through shared co-authorship (between the staff members of the two departments), further promoting the interdisciplinary one of the fundamental aspects of the today's research activity. This aspect is of strong actuality, considering the opportunity to closely work with our new colleagues from the Medical and Pharmaceutical Faculties. However, it will be a priority of the Editorial Board members to give equal opportunity to all researchers to disseminate their research outputs.

Contributions from national and international authors are also encouraged. This can reflect collaborations between our research community within

University of Medicine, Pharmacy, Science and Technology” G.E. Palade” of Târgu Mureş and researchers from other universities both from Romania and from abroad, or contributions of our colleagues you are in contact with. This issue of the journal is a good start in this sense, since we have coauthors from:

1. University of Aveiro and University of Minho, Portugal; University of Technology Kopernikusgasse, Graz, Austria;
2. Eotvos Lorand University of Budapest and Budapest University of Technology and Economics, University of Miskolc, Hungary;
3. European Center for Quality, Sofia, Bulgaria;
4. Politecnico di Torino, Italy,
5. University Politecnica of Bucharest, Romania;
6. CIE Matricon SA and Metrology Research -Quality Department, Targu Mures, Romania.

Recognition of the authors’ effort to make the journal of interest of an even wider audience, as for example other universities, industrial partners, etc. is strongly encouraged. One of the possible ways to make this happen is for example the institution of prizes, to be awarded to the best works or other classes of excellences (industrial collaborations, young researchers, student contributions, etc.). In order to give to this process a more general flavor, when possible, people outside of the editorial panel will form the jury.

In time, the above-mentioned actions and other constructive arrangements will be implemented, to give an as clear as possible picture about the academic life of our community.

Any feedback from our research community is more than welcome. We appreciate any your input aiming to reach the aforementioned goals that we believe will be of benefit of our whole community.

In this Volume, an overview of the actual scientific concerns of some Scientists is reported, where the engineering approach has the most important rule.

Currently, industrial evolution is very fast and the scientific community, together with the industrial units, has to provide reliable solutions for the development of new technologies and devices, new numerical sources, innovative materials, etc. Continuous interaction, data and know-how exchange between engineers and industrial partners set up the key-issue in such processes. Different studies are considered in the present Volume, that make the overall engineering scheme efficient and reliable. The following are some important challenges associated with engineering approach considered in this Volume:

### **Contributions in a nutshell... (Instead of the list of contents)**

The continuous increase of the use of Aluminum alloys in different applications needs manufacturing high-integrity and improved performance components. Aluminum is one of the most important light-weighting

material permitting mass savings, sensible costs limits and reducing some environmental problems, just to mention some of the advantages related to its use. The paper entitled *“Effect of materials segregation due to squeeze parameters on mechanical properties of high pressure diecast parts”* by *F. Peti and P. Serban* presents an investigation on the influence of some segregations on the mechanical behaviour of the components produced. The paper reveals some interesting aspects on determining the secondary effects of squeezing on the mechanical performance of high-pressure die cast aluminium parts.

*I. Peter and L. Matekovits* highlight the importance of materials with special properties. Surface and volumetric periodic structures both in planar and conformal appearances are illustrated for specific electromagnetic applications. The paper entitled *“Materials for electromagnetic purpose: the case of a microstrip patch antenna characteristics improvement by additions of metals as spherical inclusions into the substrate”* focuses on the effects of a flexible metamaterial (MTM) substrate on the performances of a microstrip antenna. The interest of the subject resides on the potential use of these lightweight, planar configurations in different advanced applications ranging from space equipment to advanced communication systems or in biomedical applications.

*K. Ágoston* in the paper entitled *“Studying and simulating the influence of the rotor fault on stator current”* reports an investigation about the fault detection techniques. In particular the motor current signature analysis (MCSA) involving the phase current measurement of the electrical motor’s stator and/or rotor is considered. She presents the MCSA using a properly developed equivalent circuit model analysed with Simulink. The frequency spectrum of the stator current signal is obtained by Fast Fourier Transform, that allows evaluating the relative amplitude of the current harmonics. The appearance of sideband frequencies is demonstrated, that are put in connection with some faults.

The paper entitled *“An optical flow-based gesture recognition method”* by *D.Z. Nagy and I. Piller* investigates on the human-machine interface proficiency, a significant problem in the today’s interest in the field of computer science and others. In their research work, the authors present a signal recognition method applying to an optical flow calculation and a combination to attain a heatmap-like image of the motion routes. The described experiments demonstrate the strength of the technique against colour, shape and time variance.

In the paper entitled *“Integral form of an algebraic inequality”* by *B. Finta*, the importance of the integral form of an algebraic inequality is discussed. Moreover, the possibility to employ the presented results in some applications is discussed.

Other topic, very “hot” in this period, is related to an epidemiological models focusing on two epidemic models for malaria diffusion, by *F. Dorner and R. Mosleh* in the paper entitled “*Analysis of ODE Models for Malaria Propagation*”. The characterization is realised using differential equations and both the continuous and the corresponding numerical models should preserve the basic qualitative properties of the phenomenon. Theoretical results are demonstrated and compared with results numerical simulations.

In the paper entitled “*Student’ perception of the European professors of industrial engineering and management (EPIEM) network*” by *I. C. Mustata, M. Bucur, A. C. Alvess, C. Pimentel, B. M. Zunk*, an innovative approach considered within the European Industrial Engineering and Management (IEM) organizations is discussed. The contribution targets to mirror the way the European Professors of IEM (EPIEM) network perceives itself with a students’ view. They present the results of a short analysis carried out among students to acquire their impressions about the opinion of EPIEM on different topic of their interests.

*A. Boshnyaku, D. Pipkova and L. Moldovan* reports a research about a target group survey at European level, composed of manufacturing SMEs and VETs concerning their familiarity and expertise gaps about

Industry 4.0. In the paper entitled “*Research Regarding Work Based Learning in the Field of Industry 4.0*” they outline the importance of the elaboration of the training course and a practical methodology for web based learning according to the target groups’ needs. Additionally, they offer some beginning point for starting recommendations for evidence-based policy in the field of web based learning. Considering the present health situation, the theme of the article is unquestionably topical.

*M. Bucur* in the paper entitled “*Studies on the need to monitor IAQ indicators in the production hall with microclimate with heat release- study on companies from Mures country*” focalizes on the importance of the climatic conditions in which local companies work when they are unprotected from different risks. In particular, they considers the area of Mureş; thermal comfort and air quality inside the buildings are the main reasons for their disappointment, which can be expressed by Indoor Air Quality (IAQ) index and it plays a significant role in the mental and physical capabilities of people.

**Enjoy readings!**