

REVIEW OF THE 10TH CONFERENCE HELD BY THE ACADEMY OF TECHNICAL SCIENCES OF ROMANIA

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ABSTRACT

The paper aims to present a review of the 10th Conference held by the Academy of Technical Sciences of Romania, a science event that took place in Galati and was organized by the Academy of Technical Sciences of Romania in collaboration with "Dunarea de Jos" University of Galati. The main topic of the conference was the development of companies through innovation and was open to papers in all areas of technical sciences, such as mechanical engineering, electrotechnics and energetics, electronics and automation, information technology and communication - computers and telecommunications, construction and urbanism, transport engineering, chemical engineering, materials science and engineering, petroleum engineering, mining and geonomy. Therefore, the aim of this science event was to provide a forum for both research and industry.

KEYWORDS: development, companies, innovation

1. INTRODUCTION

On October 9-10, 2015, the Academy of Technical Sciences of Romania (ASTR) organized its 10th Conference in Galati. This science event was entitled *The days of the Academy of Technical Sciences of Romania* and was open to papers in all areas of technical sciences, such as mechanical engineering, electrotechnics and energetics, electronics and automation, information technology and communication - computers and telecommunications, construction and urbanism, transport engineering, chemical engineering, materials science and engineering, petroleum engineering, mining and geonomy.

The main topic was the development of companies through innovation. For this event, the organizing committee invited members of the Academy of Technical Sciences of Romania, members of the General Association of Engineers of Romania, academic staff, researchers, doctoral and masters students and specialists from industry.

Therefore a number of 67 articles were registered, divided into a plenary section and five sections.

More than 50 participants from different universities and industry were present at this scientific event.

2. WELCOMING RECEPTION

The Conference registration and the welcoming reception took place on October 8, between 4 PM and 10 PM. The location of the event was building D of the Faculty of Engineering (figure 1).



Fig. 1. Faculty of Engineering [1]

3. OPENING SESSION

The tenth ASTR Conference was opened by professor Mihăiță Mihai, its president.

In his opening speech, the president of ASTR (figure 2) emphasized the importance of this event,

given the large number of registered scientific papers and participants. He also pointed out the fact that *“Romania is a creative country, but the last generation of students who knew what they would do since high school is the last generation. Unfortunately, the great potential that exists is not supported, due to the fact that there are not enough courses for innovation in school. A future researcher is a student whose creative thinking was developed”* [2].

At the opening session held in Aula Magna, there were also present: the County Prefect, Dorin Otrocol, professor Iulian Gabriel Bîrsan, the Rector of “Dunarea de Jos” University of Galati, His Excellency Xu Feihong, the People's Republic of China’s ambassador to Romania.

In his speech, His Excellency promised a closer cooperation between higher education institutions from both countries. He also declared: *“I’m pleased to participate here in Galati to the opening session of The days of the Academy of Technical Sciences of Romania Conference. Innovation in invention is a manifestation of progress. We cherish the cooperation in engineering between universities in China and the one in Galati”* [2].



Fig. 2. *Professor Mihăiță Mihai, president of ASTR* [2]

4. KEYNOTE SPEECHES

In total there were 7 plenary papers. The first keynote speech was given by professor Mihăiță Mihai. His speech was on business growth through innovation, which can be considered the basis of the development and performance of small, medium or large companies [3].

The second speech, given by the vice-president of Uzinsider SA, Emanuel Babici, was on innovation, restructuring, development and adaptation to the competitive market. In other words, he conducted a brief overview of the evolution of complex equipment manufacturing industry over the last 50 years and the current global situation regarding the production of complex equipment in the context of globalization [4].

The third keynote speaker was Professor Ionel Starețu. His speech was a case study on innovation management in the engineering of mechatronic products (figure 3) [5].

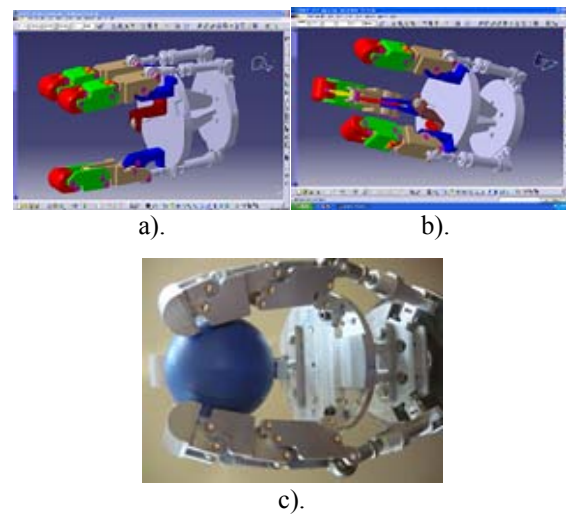


Fig. 3. *Two prehensile anthropomorphic configurations: with finger movement in parallel planes (a), with finger movement in concurrent planes (b) and corresponding prototype (c)* [5]

The philosophy, strategy and practice of innovation in Romanian shipbuilding industry integrated approach of life cycle (LCA-life cycle assessment) was the fourth keynote speech by dr. Eng. Gelu Kahu [6].

In the IT area, Professor Ioan Dumitrache, corresponding member of the Romanian Academy, presented a communication on Cyber Physical Systems as the innovation support in systems engineering [29].

Professor Alexandru Woinaroschy discussed in his lecture about product engineering – a component of companies development through innovation [7].

The last keynote speech of the conference was that of Cezar Mereuță, who talked about identifying the manufacturing and services sectors for strategic investments prerequisite for sustainable economic growth of Romania [8].

5. PAPER PRESENTATIONS

The conference was organized into 5 main sessions.

The first session, “Innovation in Engineering and Innovative Management”, contains 13 papers. This session includes studies regarding the community company sustainability (figure 4) [9], the role of consulting societies in the promotion of the innovative spirit of companies [10], results obtained by the city of Craiova in the development of companies through innovation [11], a retrospective analysis of the evolution of technical innovation in the mineral resources industry [12], studies regarding the influence of ozone on turkey carcasses microbiological decontamination [13] etc.

“Innovative Technologies in Mechanical Engineering and in Areas Connected to Mechanical Engineering” was the title of the second session including 15 research papers on residual stresses in semi-products [14], the sharpening of the twist drills - performance (figure 5) in the economy machining [15], strength of tubular components and shells-tubular junction [16], numerical simulation of underwater explosion by SPH method [17], advanced seakeeping computation for an FSU ship under given environmental conditions [18], etc.

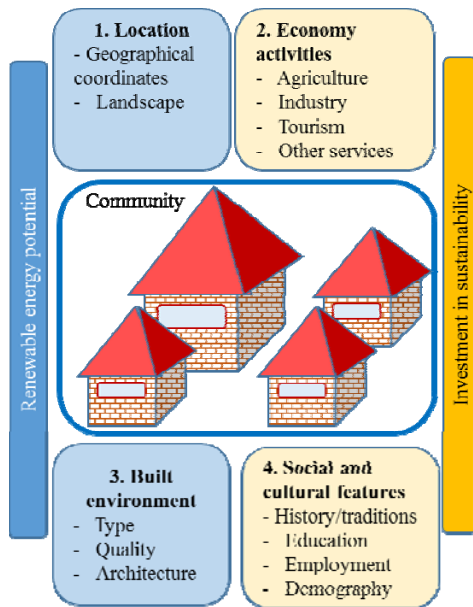


Fig. 4. Factors that influence the transition towards Sustainable Communities [9]

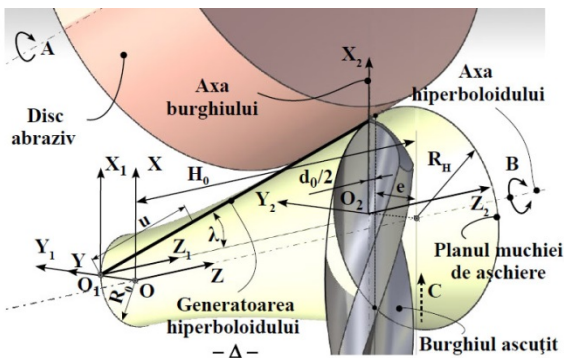


Fig. 5. Hyperboloid sharpening of drill’s multi curved blade [15]

Session 3 included 8 articles and was entitled “Innovative Technologies in Electrical Engineering and Systems Engineering”. This session comprises researches on the reduction of transmission costs of electrical energy by improving losses forecasting models [19], FPGA real-time simulation of the squirrel cage induction generators used for conversion of renewables [20], the dynamics of nonhomogeneous two-grid coupled cellular neural networks [21], data driven controller (figure 6) design for large wind systems [22], etc.

Session 4, “Innovative Technologies in Transport”, is composed of 7 scientific articles. The researches included in this session contain topics such as modeling and simulation of car suspensions with AMESim [23], the small overlap frontal impact (figure 7) of two automobiles [24], the variation of the brake fluid boiling point for the motor vehicles [25] etc.

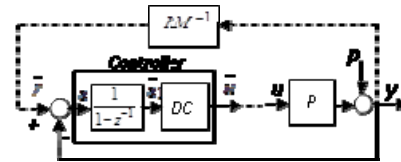


Fig. 6. Control loop in the proposed data driven method [22]

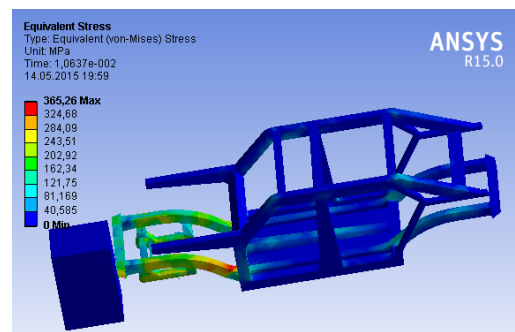


Fig. 7. Tensions obtained during a classical frontal impact with a frontal overlap impact of 40% [24]

The 5th and last conference session, “Innovative Technologies in Construction”, included 15 papers. The same as the previous sessions, it also included cutting-edge research on quality monitoring of leveling, profiling and finishing process for road earthworks [26], hygrothermal characteristics assessment of the protection system/exterior cladding of buildings [27], control and monitoring system improvement at hydraulic excavators [28], etc.

6. CONCLUSIONS

The 10th edition of the Conference The days of the Academy of Technical Sciences of Romanian was entirely a real success. This scientific event gathered a number of 67 articles divided into 5 sessions and a plenary session. The papers were published in the Proceedings of the Xth Edition of The Annual Conference THE ACADEMIC DAYS OF The Academy of Technical Sciences in Romania, Galati 2015.

More than 50 participants from different universities and industry were present at the event.

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