The innovative impact on acoustics, vibrations and system dynamics

The major evolution of technologies, the fulminant development of computer programs with applications in the signals evaluation, the innovative design and manufacturing of devices, systems and materials represent important cumulative factors for the optimizing of acoustic and dynamic vibration processes. Thus, fluid dissipative materials, silicone pastes and oils, magneto-rheological fluids, sound-absorbing and sound-insulating composite materials, elastomeric materials, dry friction buffering systems, acoustic noise level reduction systems in buildings, motor vehicles, motorways are manufactured at a high technological level and dedicated to the vibroacoustics, anti-seismic and anti-vibration domain.

The researches conducted both in Europe and worldwide reflect the plenary concerns for the conceiving and development of innovative solutions for the reduction and mitigation of noise, of the vibrations transmitted to humans and buildings, as well as for the dynamic isolation of buildings, bridges, viaducts and special constructions exposed to seismic actions.

The favorable technological effect of vibrations can be found in the performant technologies which imply the use of vibratory machines operating in appropriate dynamic regimes with the possibility to control and monitor the parameters, in real time.

Based on the research studies, the scientific content of the papers published in specialized journals, as well as on the quantifiable results, regarding the optimized systems in the analyzed domain, it results that the capitalization of the researches generates a significant impact with parametric leaps in the achievement of the expected performance.

In Romania, are held, with great success, international conferences organized by the Romanian Society of Acoustics (SRA) in cooperation with the Academy of Technical Sciences of Romania (ASTR) and the Universities from Brasov, Timisoara, Resita, Cluj-Napoca, Craiova and Pitesti. All the mentioned conferences have as a special thematic, the complex problems in the field of industrial, urban and infrastructure (motorways and railways) acoustic. The mitigation of vibrations transmitted to humans, residential buildings and special constructions are another significant set of approached issues.

The dynamic analysis of, cinematically and dynamically excited structures in seismic actions constitutes another important domain for the anti-seismic protection in seismic prone areas.

From the analysis of the papers published in the mentioned domain, a plenary and intense concern for researches aimed at providing efficient and performant technical solutions is highlighted.

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