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Chronicle

43rd Winter School on Vibroacoustical Hazards Suppressions Szczyrk, Poland, March 2 – 6, 2015

Dear Ladies and Gentlemen,

Traditionally, the 43rd Winter School on Vibroacoustical Hazards Suppressions national conference was organized by Upper Silesian Division of the Polish Acoustical Society (main organizers) and by The Committee on Acoustics of The Polish Academy of Sciences (co-organizer). The Conference, as in previous years, was held in Szczyrk.

The conference is a forum for all environmental vibroacoustic fields. Particularly it concerns traffic noise, industry noise, vibroacoustics of machines, room acoustics, building acoustics, noise protection and similar problems. Works which are presented during the School are theoretical, experimental, measuring, technical, applied and normative.

The School lectures and other conference materials will be published in the "Materials of the XLIII Winter School on Vibroacoustical Hazards Suppressions" (in Polish) edited by dr. Roman Bukowski. This publication will be intended for participants of the School and for many libraries in Poland. Moreover you can find in this issue abstracts of some lectures presented at conference.

Other information about the 43rd WS on VHS you can find on our website

http://ogpta.pols.pl/szzzw

On behalf of Organizers
Roman Bukowski
Chairman of the Conference

Abstracts

Problems of analyzing and assessing noise of selected means of transport

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Noise is a problem encountered in everyday life of every human in the place of living, travelling and resting. According to various data, on average, during a day we spend 13 hours at home, about 7 hours at work and about 90 minutes in the car. The best comfort from the perspective of noise we have at home and at work, the worst during travelling in various means of transport. In most cases noise generated by means of transport exceeds acceptable levels.

This article presents methods of analysing selected means of transport and results of noise measurements. The main attention is drawn to noise generated to the environment by rail vehicles during stopover and travelling, trams in the city traffic, motor vehicles going on a motorway and aeroplanes. Results presented in the paper refer to only a part of research carried out for a few years by the team of authors working in the Institute of Combustion Engines and Transport at Poznań University of Technology. The objective of the research is not only to assess noise generated by means of transport but also to model noise propagation and to forecast it as well as to apply vibro-acoustic effects to diagnosing the condition of vehicles and assessing their vibroactivity from the perspective of the influence on the environment.

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Analysis of the sources of underwater noise produced by a moving ship in the shallow water

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One of the major issues of underwater acoustics noise is the noise of technical origin related to a maritime transport. Underwater noise is treated as noise in the gaseous environment (atmosphere), as a kind of pollution of natural state. Acoustic disturbances generated by a generalized maritime transport i.e. by a set of floating objects, in particular cargo ships, play an important role in the structure of the underwater noise of the sea.

This paper will present an analysis of the sources of acoustic waves radiated into the sea environment, related

to the work of main and auxiliary mechanisms associated with the drive of ships and vessels.

In such case, the impact of surface sources associated with the activity of dynamic mechanisms inside the hull and transport of the vibroacoustic energy into the seawater environment through the hull of the watercraft will be considered.

The mechanism of sound generation by the propellers will be presented. This aspect will cover two areas of work, namely the work with or without cavitation.

The impact of the noise caused by the turbulent flow around a ship's hull will be generally characterized.

The noise characteristics of the vessels will be shown, depending on the forward speed, distinguishing the impact of the above mentioned sources.

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Protection against aircraft noise in residential buildings

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Aircraft noise composed of a number of intermitted acoustic events is more annoying than any other kind of transportation noise with the same equivalent sound level. Long-term L_{DEN} and L_N indicators are used for the assessment but also maximum levels and the number of events should be taken into consideration. The maximum level criterion is decisive for night-time conditions because of possible sleep disturbances. It is taken into account when determining required sound insulation of a building envelope. However it is quite difficult to derive average maximum level in a specific location from commonly accessible data.

The problem of residential buildings exposed to aircraft noise is discussed. A simplify method for evaluation of an average maximum noise level is proposed based on a strategic noise map and the number of discrete noise events during the night. The value plays a pivotal role in defining adequate means of a building protection against external noise and providing proper sound insulation of its elements. The question of possible assessment of internal conditions with open or half open windows is also considered.

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Influence of entry gates on efficiency of an acoustic screen

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The biggest source of noise pollution on the environment in Poland is road vehicles. Most acoustic screens are placed between roads and houses. Most of them are equipped with entry gates which allow for entry to the property. An experimental and analytical efficiency method of traffic noise protection against traffic noise and the influence of a couple of entry gates have been presented in this paper. To determine normative effectiveness of the acoustic screen under discussion an indirect method has been applied. The results of measurements and calculations have been compared. The calculations have been made with the use of three methods. The temperature has been used to calculation speed and length sound wave in analytical methods Low acoustic efficiency in the range of 0 to 8 dB has been proved. Low efficiency mainly resulted from the low height and length of the acoustic screen. Acoustic efficiency with closed entry gates is better than with open ones but only 2 dB Insignificant influence has resulted from a slot under the gate, lower height than the screen height and slots between the gates and screens panels. These slots can be seen after closing the gates.

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The tests of the influence of ultrasonic noise on the human body

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This paper presents the method and stand for laboratory tests conducted to determine the influence of ultrasonic noise on the human body. Twenty men aged to 20–25 were chosen for tests. The study subjects were characterized of good health status (eligibility determined with participation by a physician), lack of significant hearing impairments (established on the basis of audiometric tests) and the appropriate level of reactivity (understood as a temperament feature). The present article consists of subjective results of this test during exposure to ultrasonic noise.

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