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Chronicle

39th Winter School on Vibroacoustical Hazards Suppressions
Szczyrk, Poland, February 28 – March 4, 2011

Traditionally I invite you to acquaint with the preliminary list of lectures and some abstracts of lectures submitted for presentation in the 39th Winter School on Vibroacoustical Hazards Suppressions. This national School, organized by Upper Silesian Division of the Polish Acoustical Society and Institute of Physics at the Silesian University of Technology, is planned this year at the turn of February and March 2011. This conference is organized in different places of Silesian Beskidy Mountains, but this year will be again organized in Szczyrk.

The conference is the forum for all environmental vibroacoustics fields. Particularly it concerns the traffic noise, industry noise, vibroacoustics of machines, room acoustics, noise protection and similar problems. During the School, the theoretical works, experimental, measuring, technical, applied and normative ones are presented.

The School lectures, and other conference materials, will be published in the "Materials of the XXXVIX Winter School on Vibroacoustical Hazards Suppressions" (in Polish) edited by dr. Roman Bukowski and dr. Mieczysław Roczniak (chairman of the conference). This publication is intended for participants of the School and for many libraries in Poland.

Other information about XXXVIX WS on VHS can be found at the address:

http://ogpta.pols.pl/szzzw

The School is traditionally sponsored by the Ministry of Science and Higher Education.

In behalf of Organizers
Roman Bukowski
coordinator of the School

Abstracts

1. Aspects of relations of spatial planning with the acoustic map

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In the article was performed an identification of variability of characteristics of urban areas development in their acoustic aspects, and described the importance of relating spatial planning processes with the acoustic map.

The changes undertaken in spatial planning are limited, on the one hand, by some local conditions and, on the other hand, by the requirements. Shaping of the acoustic climate in the municipality/city is possible just on the basis of initial land use, planning and development.

So far there was no direct relation between the statements of strategic local development plans and statements of other local programs (i.e. environment protection, etc.). The most effective activities in minimizing exposition to the noise, should be implemented in the earliest possible stage of works on land use plan, since in this very moment the possibilities of influencing the future acoustic climate in the environment are the greatest.

The tasks in the area of managing acoustic climate in the municipality should be implemented in an integrated and coordinated manner, according to other strategic documents. Any alterations in all strategic documents should be reflected by appropriate changes in the others.

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2. The open-end correction coefficient for arbitrary cut-on mode propagating in acoustic tube

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The paper presents a method of theoretical derivation and numerical calculation of the open-end correction coefficient for an arbitrary cut-on mode, propagating in acoustic waveguide. Actually, the so-called open-end correction coefficient of acoustic tube, frequently discussed in the literature, refers to specific conditions, when the wave heading the outlet is a plane wave. It follows from the fact that the plane wave is a commonly applied approximation when considering the phenomena in duct-like devices or systems (tubes, musical instruments, heating or ventilation systems). The aim of the paper is to extend the concept of the open-end correction on the so-called higher Bessel modes, that

under some conditions can also propagate in a duct. Theoretical results, forming the basis for numerical calculations, were obtained by considering diffraction at the duct end and applying the Wiener-Hopf factorization method. As a result, the formula for the acoustic field inside the duct was derived, according to which the resulting field is composed of the incident wave and all cut-on reflected/coupled modes of the same circumferential order (described by the cosine function of argument $m\phi$, where ϕ is the azimuthal angle and m is integer number $m = 0, 1, 2 \ldots$). For a hard duct excited harmonically with a given frequency ω, there is a limited number of propagating modes called the cut-on modes, depending on the duct radius and the signal frequency. The frequency limit between the propagating and exponentially dumped modes is called the cut-off frequency. In a hard duct, the cut-off frequency for the plane wave is zero, therefore it propagates in a duct of any radius at any frequency. However, if the Helmholtz number exceeds the value $ka = \omega\ a/c = 3.83$, above which the first axis-symmetric Bessel mode can propagate, even if the incident wave is assumed to be a plane wave, the reflected wave is composed of two modes, namely the plane wave and the first axi-symmetric mode. Each mode present in the reflected wave is characterized by the complex reflection/coupling coefficient, argument of which describes phase change at the duct end, and therefore the open-end correction coefficient can be attributed to each coupled pair of modes.

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1. Boczkowski Arkadiusz
   Rational design and implementation of acoustic protections in inustry [in Polish: *Racjonalne projektowanie i wdrażanie zabezpieczeń przeciwhałasowych w przemyśle*].
2. Dudek Wojciech, Dudek Anna
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3. Fiebig Wiesław
   Two stage vibration isolation on example of vibrating conveyor [in Polish: *Wibroizolacja dwustopniowa na przykładzie rynny wstrząsowej*].
4. Górski Paweł, Kozłowski Emil, Szczęch Gracjan
   The brass barrier with active noise reduction system [in Polish: *Układ aktywnej redukcji hałasu przenikającego przez przegrodę w postaci płyty mosiężnej*].
5. Kowalski Piotr, Zając Jacek, Martynowicz Paweł
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6. Kozłowski Emil, Żera Jan, Górski Paweł, Młyński Rafał
   Attenuation of acoustic screen for musicians [in Polish: *Skuteczność tłumienia ustroju akustycznego dla muzyków*].
7. Krukowicz Tomasz, Radosz Jan, Zając Jacek
   Application of radial basis function neural network in active noise control systems [in Polish: *Propozycja zastosowania sieci neuronowych radialnych w systemach aktywnej redukcji hałasu*].

8. KUBOSZEK Artur, JAKUBIAK Michał
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9. MACIEJCZYK Jerzy
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10. NURZYŃSKI Jacek
The sound insulation of openings, slots and air transfer devices [in Polish: *Izolacyjność akustyczna otworów szczelin i elementów wentylacyjnych*].
11. ORCZYK Małgorzata, TOMASZEWSKI Franciszek, WIESZCZECZYŃSKI Damian
Noise assessment of chosen tram types in stoppage conditions [in Polish: *Ocena hałasu w wybranych typach tramwajów na postoju*].
12. PASZKOWSKI Waldemar
Aspects of relations of spatial planning with the acoustic map [in Polish: *Aspekty powiązania procesu planowania przestrzennego z mapą akustyczną*].
13. RADOSZ Jan
Ultrasonic noise at selected workplace – influence of microphone placement on measured sound pressure levels [in Polish: *Hałas ultradźwiękowy na wybranym stanowisku pracy – wpływ położenia mikrofonu na mierzone wartości poziomu ciśnienia akustycznego*].
14. SNAKOWSKA Anna, JURKIEWICZ Jerzy, SMOLIK Damian
The open-end correction coefficient for an arbitrary cut-on mode propagating in acoustic tube [in Polish: *Poprawka wylotu dla dowolnego modu propagującego się w cylindrycznym falowodzie akustycznym*].
15. WOJCIECHOWSKA Estera
TSI noise – requirements for railway noise [in Polish: *TSI hałas – wymagania w zakresie hałasu kolejowego*].