

PROCEEDINGS OF THE CONFERENCE ON NOISE SUPPRESSION NOISE CONTROL 92

Foreword

The IX International Conference on Noise Suppression — NOISE CONTROL 92 was held from the 22-nd to the 24-th September 1992 in Cracow. The conference was organized by the Committee on Acoustics of the Polish Academy of Sciences, Polish Acoustical Society and Institute of Mechanics and Vibroacoustics of the Academy of Mining and Metallurgy, in cooperation with the Central Institute of Work Protection (Warsaw) and Repair Plant of Metallurgy (Cracow). The NOISE CONTROL 92 conference was organized under the auspices of the Ministry of Natural Resources and Forestry, and was devoted to the theme "Science and technology for silence".

The NOISE CONTROL 92 conference was organized in parallel with the XXXIX Open Seminar on Acoustics.

Both conferences were attended by 180 participants coming from 12 countries, namely from Australia, Belgium, Czechoslovakia, Denmark, France, Germany, Holland, Italy, Poland, Serbia, Switzerland, Ukraine.

On the second day of the conference, especially solemm was the session devoted to Prof. Ignacy MALECKI and Dr Per BRÜEL, the scientists of high international renown. The senior of Polish acousticians, doctor h.c. of the Academy of Mining and Metallurgy in Cracow as well as the chairman of the Scientific Committee of the NOISE CONTROL 92 Conference — Prof. Ignacy MALECKI celebrated the 80-th anniversary of his birth. The president of the Committee on Acoustics of the Polish Academy of Sciences — Prof. Leszek FILIPCZYŃSKI presented a lecture devoted the scientific activity to Prof. Ignacy MALECKI. On the occasion of the 50-th anniversary of existence of the Brüel-Kjaer Company producer of acoustical equipment, the president of the Polish Acoustical Society, Prof. Antoni ŚLIWIŃSKI, handed over the diploma of honorary membership of the Polish Acoustical Society to Dr. Per BRÜEL. Dr. Per BRÜEL presented during the session a lecture on *A new way for looking on indust hearing loss.*

The following plenary papers were presented:

1. Z. ENGEL, A. RAKOWSKI, *Prof. Stefan Czarnecki reminescence on the occasion of the 10-th anniversary of his death.*
2. I. BALLO, *Electro-pneumatic active vibration control system for driver's seat on earth moving vehicles.*
3. A. COPS, W. LAURIKS, *Characterization of sound absorbing metarialis used in noise control engineering.*

4. W. MAJEWSKI, *Automatic recognition of isolated words-modern tendency.*
5. A. RAKOWSKI, *Investigations of sensorial memory of tone pitch a local method.*
6. J. SADOWSKI, B. SZUDROWICZ, J. ŻUCHOWSKA-WODNIKOWSKA, *The acoustical research in quality system of the object and building products.*

In the framework of the NOISE CONTROL 92 Conference, 18 sessions were held and 69 papers were presented, whereas during the Open Seminar on Acoustics 9 sessions were held and 59 papers were presented.

A round-table meeting was also organized the chairman of which was Prof. A. ŚLIWIŃSKI. The meeting was devoted to the role of education in noise control. A lecture initiating the discussion was presented by Prof. Z. ENGEL.

In the framework of the NOISE CONTROL 92 conference, the following sessions were organized:

1. Physical foundations,
2. Energy methods (3 sessions),
3. Measurements, diagnostics (3 sessions),
4. Machine and equipment noise (3 sessions),
5. Noise in building objects,
6. Noise and vibrations in the environment (3 sessions),
7. Effects of noise and vibrations (2 sessions).

Presentation of the state of emergency in Poland caused by noise and vibrations was not the purpose of the NOISE CONTROL 92 conference. This problem is well known from the report prepared by the Acoustical Committee in 1984 and from another report prepared by a group of specialists headed by Prof. J. SADOWSKI. In 1989, another conference on noise control was held aimed at demonstrating the possibility of reduction of the existing hazards. During this conference, the problem of bringing Poland into line with the EEC requirements was also considered.

NOISE CONTROL 92 conference has shown that there exist in Poland certain possibilities of developing extensive scientific and technological research in order to improve the acoustical environment. To this end, it is necessary to bring Polish standards and regulations into line with the international requirements, to introduce obligatory vibroacoustical certificates of machines and devices, and to support such actions financially. The last condition is of a particular importance. It should be stressed that most of the papers presented gave rise to animated discussions. The cooperation has been improved between the lawyers employed by the Polish Academy of Sciences, universities, industrial institutes, business and governmental administration (especially, by the Departments of Environment Protection of the District Offices), the cooperation being concerned with the very important and not always duly appreciated problem of noise abatement.

The subjects of the presented papers and discussions make it possible to determine the following future trends of development of scientific and technological research:

1. Development of energy methods in acoustical investigations, mainly the intensity methods.
2. Application of active methods to noise suppression and sound control.

3. Investigation of material sounds.
4. Preparation of vibroacoustic certificates of machines and devices in Polish laboratories.
5. Adaptation of Polish standards and regulations to the requirements of the European community.
6. Developing wide international cooperation.

As it was mentioned, the round-table meeting was devoted to the role of vibroacoustic education. The following conclusions can be drawn from the discussion:

1. The role of a suitable, wide public education concerning the control of noise and vibration is of great importance.
2. In Poland, the number of specialists with satisfactory education in the field of protection of the environment against noise and vibrations would be sufficient if the emigration during the last decade did not take place.
3. In spite of numerous efforts, the model of education of specialists in acoustics has not been prepared as yet; up to now, acoustics is being taught as a part of physics, mechanics, electronics etc., at different faculties of the universities.
4. The level of postgraduate studies organized in numerous schools is sufficient.
5. Several instruction courses on different levels are being organized. The number and quality of these courses are not satisfactory.
6. Some problems of protection of environment, against noise and vibrations, should be included in the public education programs.
7. The participants of the round-table meeting asked Prof. A. ŚLIWIŃSKI to organize a special conference devoted to the problems of acoustic education similar to the conference held in 1987.

In the framework of the NOISE CONTROL 92 conference, an exhibition was organized of measurements and materials used in the noise vibration abatement technology. It is a pity that only 10 producers participated in the exhibition.

actual research topic. The improvement of driver's insulation from excessive vibration means not only decrease of health risk to the driver and improvement of his work comfort, but often also marked improvement in the full utilisation of the working capacity of the machine. This problem is even pronounced in earth moving machines, which operate in rough terrain. Here the main vibration control elements are the tyres and the driver's seat.

*Z. Engel*

In contemporary driver's seats the most common vibration control system is a passive one, which does not need any external source of energy for his proper operation. In most systems an air spring is used as the main resilient element. The use of this structural element enables to reach rather low natural frequencies of the vibration control system. In addition, by the control of the average static pressure in the air spring, a suitable static middle position of the isolated load can be maintained, regardless of the changes in its weight. Because only the average static pressure has been changed and not the instantaneous one, such systems are often referred to as "semi-active" ones. Despite the fact that these systems require supply of compressed air, they are treated as passive ones.