

17th INTERNATIONAL CONFERENCE

noise control '16

22-25 May 2016, Gniez, Poland

Conference Proceedings

noise control '16

22-25 May 2016, Gniew, Poland

Program • Programme

PATRONAT HONOROWY • HONORARY PATRONAGE

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Główny Inspektor Ochrony Środowiska
Chief Inspector of Environmental Protection

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Committee on Acoustics of the Polish Academy of Sciences

Centralny Instytut Ochrony Pracy – Państwowy Instytut Badawczy •
Central Institute for Labour Protection – National Research Institute

we współpracy z • in cooperation with

Operatorem Gazociągów Przesyłowych GAZ-SYSTEM S.A. •
Gas Transmission Operator GAZ-SYSTEM S.A.

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17. MIĘDZYNARODOWA KONFERENCJA ZWALCZANIA HAŁASU
17th INTERNATIONAL CONFERENCE

noise control '16

22-25 maja 2016 r. • 22-25 May 2016, Gniew

Program • Programme

Niedziela, 22 maja 2016 • Sunday, 22 May 2016

- 14.00 – 19.00 Rejestracja uczestników • Registration of participants
- 14.00 – 15.30 Zwiedzanie miasta Gniew z przewodnikiem • Guided tour of the city Gniew
- 16.00 – 17.00 Zwiedzanie zamku i ekspozycji Muzeum Archeologicznego w Gdańsku Oddział w Gniewie z przewodnikiem • Guided tour of the Castle
- 16.00 – 19.00 Posiedzenie Komitetu Akustyki PAN • Session of the Committee on Acoustics of the Polish Academy of Sciences

19.00 – 20.00 Uroczyste otwarcie Konferencji • **Opening Ceremony**

Muzyczne powitanie w wykonaniu Zespołu Ladies String Quartet •
A music welcome by the Ladies String Quartet

Adresy powitalne • **Welcome addresses**

- Prof. Adam Lipowczan – Przewodniczący Komitetu Naukowego Konferencji • **Chair of the Scientific Committee**
- Prof. Eugeniusz Kozaczka – Przewodniczący Komitetu Akustyki PAN • **Chair of the Committee on Acoustics of the Polish Academy of Sciences**
- Ewa Lieder – poseł na Sejm RP • **Member of Parliament**
- Antoni Szymański – Senator • **Senator**
- Małgorzata Wojciechowska – Ministerstwo Środowiska • **Ministry of the Environment**
- Tadeusz Dzwonkowski – Starosta Tczewa • **Starosta of Tczew**
- Odczytanie adresu powitalnego od Ministra Rodziny, Pracy i Polityki Społecznej • **Welcome address from the Minister of Family, Labour and Social Policy**
- Odczytanie adresu powitalnego od Głównego Inspektora Pracy • **Welcome address from the Chief Labour Inspector**
- Odczytanie adresu powitalnego od Głównego Inspektora Ochrony Środowiska • **Welcome address from the Chief Inspector of Environmental Protection**

Minikoncert zespołu Ladies String Quartet • **A mini-concert of the Ladies String Quartet**

20.30 – 23.00 Kolacja przy ognisku • **Dinner by a bonfire**

7.00 – 8.30 Śniadanie • Breakfast

8.30 – 11.00 Referaty plenarne • Plenary papers

Sala A • Room A

Chair **Jan Adamczyk**

8.30 **Adam Lipowczan**

The environment and ecological acoustics, the current state and perspectives

9.00 **Eugeniusz Kozaczka, Grażyna Grelowska**

Noise in the sea environment

9.30 **Antoni Śliwiński**

On the noise hazard assessment within the intermediate range of the high audible and the low ultrasonic frequencies

10.00 **Zbigniew Dąbrowski, Jacek Dziurdź**

Simultaneous analysis of vibrations and noise in the task of minimizing vibroacoustic activity of machines

10.30 **Eleonora Carletti, Giuseppe Miccoli, Francesca Pedrielli, Giorgio Parise**

Vibroacoustic measurements and simulation for external gear pumps. An integrated simplified approach

11.00 – 11.30 Przerwa na kawę • Coffee break

11.30 – 13.30 Referaty sekcyjne • Session papers

Sala A • Room A •
Akustyka budowlana •
Building acoustics

Sala B • Room B •
Wpływ hałasu na człowieka •
The impact of noise on the human

Sala C • Room C •
Pomiary i aparatura (1) •
Measurements
and instrumentation (1)

Chair Czesław Cempel

Chair Antoni Śliwiński

Chair Andrzej Dobrucki

11.30 Daniel-Lirio Weyler
Practical experiences of structure-borne noise measures for building constructions

11.30 Grażyna Malczyk, Wiesław Wszółek
Acoustic methods in the rehabilitation of people who stutter

11.30 Maciej Jakubów, Filip Barański
Integration of multiple measuring systems using LabVIEW environment

11.50 Witold Mikulski,
Izabela Warmiak
Acoustic assessment of open plan office rooms

11.50 Małgorzata Pawlaczyk-Łuszczczyńska,
Kamil Zaborowski, Małgorzata Zamojska-
-Daniszewska, Paulina Rutkowska,
Adam Dudarewicz, Mariola Śliwińska-
-Kowalska
Hearing status in young people using personal listening devices

11.50 Bartosz Chmielewski
The use of the microphone arrays for analysis of noise levels in environment

- 12.10 **Karolina Jaruszewska**
ArAc – Multibook of Architectural Acoustics
- 12.10 **Rafał Młyński, Emil Kozłowski**
Measurement of speech intelligibility in workplace noise for subjects aged over 50
- 12.10 **Piotr Bilski, Piotr Bobiński, Adam Krajewski**
Detection of the woodworm's larvae based on the acoustic signal analysis and the artificial intelligence algorithm
- 12.30 **Wojciech Batko, Paweł Pawlik, Grażyna Wszótek**
Sensitivity analysis of the estimation of single-number sound absorption evaluation index $DL\alpha$
- 12.30 **Bartłomiej Kukulski**
Influence of the sound masking on the feeling of annoyance for impulsive signals
- 12.30 **Grzegorz Makarewicz**
The use of mobile devices as tools to support the assessment of exposure to noise and vibration
- 12.50 **Elżbieta Nowicka**
The reproducibility of the façade sound insulation
- 12.50 **Bożena Kostek, Piotr Ody, Piotr Suchomski**
Loudness scaling test based on categorical perception
- 12.50 **Barbara Zimniewicz, Andrzej Miśkiewicz, Jan Żera, Barbara Okoń-Makowska, Jacek Majer**
Detection and recognition thresholds of sound effects
- 13.10 **Andrzej Chyla, Michał Bukała**
Analysis of methods of assessing the impact of aviation noise used in Poland

13.30 – 14.30 Obiad • Lunch

14.30 – 17.10

Referaty sekcyjne • Session papers

Sala A • Room A •

Aktywne metody redukcji •
Active noise reduction

Sala B • Room B •

Hałas środowiskowy •
Environmental noise

Sala C • Room C •

Zwalczanie hałasu i drgań
mechanicznych w środowisku
pracy – dobre praktyki • Noise
and vibration control in working
environment – good practices

Chair Grzegorz Makarewicz

Chair Wojciech Batko

Chair Wiktor Marek Zawieska

14.30 Stanisław Wrona,
Marek Pawełczyk
*Feedforward control of a light-
-weight device casing for active
noise reduction*14.30 Tadeusz Wszolek
*Cumulative industrial noise impact
on the environment*14.30 Stanisław Jakubowski
*Hazards related to noise in working
environment – experiences of the
National Labour Inspectorate based
on employers' supervision in 2013-2015*14.50 Krzysztof Mazur,
Marek Pawełczyk
*Internal Model Control for
a light-weight active noise-
reducing casing*14.50 Bartłomiej Stępień
*The use of kernel density estimator
to determine the confidence intervals
for long-term noise indicators*14.50 Urszula Mieszczak
*Ecological activities of Katowicki
Holding Węglowy S.A., controlling
noise emissions to the environment*15.10 Sebastian Kurczyk,
Marek Pawełczyk
*Nonlinear structural acoustic con-
trol with shunt circuit governed
by a soft-computing algorithm*15.10 Bartosz Przysucha, Tadeusz Wszolek,
Wojciech Rosa, Agata Szeląg, Wojciech Batko
*Representativeness of the measuring sample
in the acoustic study of road traffic when
determining the long-term noise indicators*15.10 Włodzimierz Chybiński
*Noise reduction in power units
of PGE GiEK Elektrownia Bełchatów*

- 15.30 **Tomasz Krukowicz, Leszek Morzyński**
Round-Robin adaptation scheduling in multichannel active structural acoustic control – example application for a glass panel
- 15.30 **Bartłomiej Kukulski, Tadeusz Wszótek**
Analysis of selected cases of impulsive noise in transport and industry
- 15.30 **Paweł Mońka**
Activities of the Gas Transmission Operator GAZ-SYSTEM S.A. on noise reduction in the working environment
- 15.50 **Leszek Morzyński, Tomasz Krukowicz**
Double panel structure with active structural acoustic control
- 15.50 **Honorata Kujawa-Łobaczewska, Jerzy Maciejczyk, Tadeusz Wszótek**
The L_D , L_N , L_{DEN} long-term noise level descriptors distribution analysis as a function of measurement point characteristics
- 15.50 **Piotr Kubala**
Activities of RAFACO S.A. towards reducing noise and vibration in the working environment
- 16.10 **Sebastian Bernat**
Social conflicts and soundscape
- 16.10 **Piotr Maciejewski, Elżbieta Kutyba**
Reduction of occupational hazard related to noise exposure on the example of the manufacturing plant Lumileds Poland S.A.
- 16.30 **Karolina Marciniuk, Maciej Szczodrak, Bożena Kostek**
A noise map service working in cloud computing environment
- 16.30 **Lidia Warda**
Risk assessment and reduction of noise exposure at the workplaces in Grupa Azoty Zakłady Azotowe „Puławy” S.A.
- 16.50 **Dominik Mleczko, Agnieszka Ozga, Janusz Piechowicz, Cezary Kasprzak**
Acoustic environment of the upper wildlife crossings over the A4 motorway

17.40 – 20.00 Referaty sekcyjne • Session papers

Sala A • Room A •

Hałas infra- i ultradźwiękowy •
Infrasonic and ultrasonic noise

Sala B • Room B •

Ograniczenie hałasu •
Noise reduction

Sala C • Room C •

Zwalczanie hałasu i drgań
mechanicznych – aparatura
pomiarowa i rozwiązania
techniczne • Noise and vibration
control – measurement equip-
ment and technical solutionsChair **Małgorzata Pawlaczyk-
Łuszczzyńska**Chair **Janusz Kompała**Chair **Wiktor Marek Zawieska**17.40 **Bożena Smagowska***Exposure to the ultrasonic noise at
workstations of welding machines*17.40 **Ewa Kotarbińska***Why earplugs performance in real world
is often very poor?*17.40 **Wojciech Mazij***Passive hearing protection and solu-
tions for communication in high-level
noise areas*18.00 **Adam Zagubień,
Katarzyna Wolniewicz***Everyday exposure to infrasound
noise*18.00 **Grzegorz Szczepański,
Leszek Morzyński***Autonomous remote monitoring system
to control noise and vibration hazards
in the working environment*17.55 **Karol Sałagan***Improved methods for measuring
vibration and noise at workstations*

18.20 **Adam Dudarewicz, Małgorzata Pawlaczyk-Łuszczczyńska, Kamil Zaborowski, Paulina Rutkowska**
The hearing thresholds of employees exposed to noise generated by the low-frequency ultrasonic technological equipment

18.20 **Bartosz Chmielewski**
Reduction of occupational noise exposure for metalworking workstations on the example of cleaning after gravelling using pneumatic hammer

18.10 **Piotr Tadzik**
Locating sound sources with microphone matrices and a noise-intensity probe

18.25 **Marcin Korbasiewicz**
3D visualization of the acoustic field

Sala A • Room A •
Hałas turbin wiatrowych •
The noise of the wind turbines

Chair **Dariusz Pleban**

18.40 **Jacek Szulczyk, Paweł Libiszewski, Marcin Marecki, Czesław Cempel**
Comparison of computational and actual sound levels of wind turbine farms

18.40 **Paweł Górski, Bartosz Kaczorowski**
3M™ E-A-Rfit™ Dual-Ear Validation System as a tool for education in the proper use of hearing protection

18.40 **Katarzyna Małysa-Gajek**
Acoustics under control – solutions in measuring environmental noise

19.00 **Małgorzata Pawlaczyk-Łuszczynska, Kamil Zaborowski, Adam Dudarewicz, Małgorzata Zamojska-Daniszewska, Paulina Rutkowska, Małgorzata Waszkowska**
Health effects related to noise from wind farms in subjective assessment of people living in nearby areas

19.20 **Tomasz Malec**
Infrasound noise from the high power wind turbines

19.40 **Adam Zagubień, Ryszard Ingielewicz**
The results of the measurements and analyses of impact of wind farms on acoustic climate

18.55 **Eric Sorber**
Solving excavator noise by using TPA

19.10 **Wiesław Fiebig**
Noise sources localization – handheld acoustic camera for real-time acoustic mapping on tablet

21.00 – 2.00 Uroczysta kolacja • Gala dinner

7.00 – 8.00 Śniadanie • Breakfast

8.30 – 12.00 Wycieczka • Tour

13.00 – 14.30 Referaty plenarne • Plenary papers

Sala A • Room A

Chair Adam Lipowczan

13.00 **Maurycy J. Kin, Andrzej Dobrucki**
Perception of changes in timbre and envelope of musical signals vs. hearing fatigue

13.30 **Diana Ioana Popescu, Ioan Cosma**
Traffic noise models for curved roads

14.00 **Len Gelman**
Novel nonlinear nonstationary higher-order techniques for noise and vibration control

14.30 – 15.30 Obiad • Lunch

15.30 – 16.50 Referaty sekcyjne • Session papers

Sala A • Room A •

Drgania mechaniczne (1) •
Mechanical vibration (1)

Chair **Zbigniew Dąbrowski**

15.30 **Jarosław Bednarz**

The new methodology for assessing of the applicability of elastomeric materials in the vibration isolation systems of railway lines

15.50 **Jarosław Bednarz, Jan Targosz, Wojciech Lisowski**

Analysis of the possibility of limiting the impact of ground vibrations caused during demolition of towers on environment

16.10 **Jan Adamczyk, Jarosław Bednarz, Jan Targosz**

Simulation of vibration wave propagation from the rail vehicles subgrade to the environment

Sala B • Room B •

Pomiary i aparatura (2) • Meas-
urements and instrumentation (2)

Chair **Tadeusz Wszółek**

15.30 **Sujatha Chandramohan, Sudheesh Kumar C.P., Shankhar Krishnapillai**

An investigation of the influence of beam geometry on the acoustic response due to a moving oscillator

15.50 **Grzegorz Klekot**

The role of accredited testing laboratories in performing surveillance of noise and vibration hazards at workplaces in Poland

16.10 **Tomasz Korbiel, Wojciech Batko, Paweł Pawlik, Robert Barański, Bartłomiej Stępień, Jędrzej Blaut**

Impact of filtration of random mechanical disturbance in noise dosimetry on result uncertainty of noise hazard assessment

Sala C • Room C •

Hałas w środowisku pracy (1) •
Noise in the work environment (1)

Chair **Wiesław Wszółek**

15.30 **Janusz Kompała, Rafał Wiśniowski**

Noise hazard in Polish hard coal mining

15.50 **Jan Radosz**

Acoustics and vibrations in railway control centers on the example of 10 selected rooms

16.10 **Izabela Warmiak, Witold Mikulski**

Noise zones at shale gas drill site

16.30 **Jacek Zajęc, Piotr Kowalski**
The research of materials for protection against mechanical vibration at workstations

16.30 **Sujatha Chandramohan, Ajay Varma**
Theoretical and experimental modal analysis of an acoustic guitar

16.30 **Emil Kozłowski, Rafał Młyński**
Measurement of earmuffs attenuation at high audible frequencies

16.50 **Jan Adamczyk, Jarosław Bednarz, Jan Targosz**
Simulation studies of the dynamics of railway crossings with vibration isolation based on elastomeric damping elements

17.10 – 17.30 Przerwa na kawę • **Coffee break**

17.30 – 18.50 **Referaty sekcyjne • Session papers**

Sala A • Room A •
Drgania mechaniczne(2) •
Mechanical vibration (2)

Sala B • Room B •
Pomiary i aparatura (3) •
Measurements and instrumentation (3)

Sala C • Room C •
Hałas w środowisku pracy (2) •
Noise in the work environment (2)

Chair **Jan Kiciński**

Chair **Tadeusz Kamisiński**

Chair **Wiesław Wszółek**

17.30 **Piotr Kowalski, Jacek Zajęc**
Test bench for the simulation of low frequency whole-body vibration

17.30 **Aleksandra Młyńska, Marek Bugalski, Danuta Dobrowolska**
Periodic tests of tympanometers: a way to assure measurement traceability and reliability of audiological tests

17.30 **Tomasz Krukowicz**
The importance of testing of hearing protectors in real world – a review of issues

- 17.50 **Jarosław Bednarz**
A new research methodology for assessment of ground vibrations caused by the railway vehicles movement
- 17.50 **Joanna Kolasa, Zbigniew Siejda**
Calibration of vibration measuring equipment in the low frequency range in GUM (Central Office of Measures)
- 17.50 **Jan Żera, Maciej Jasiński, Agnieszka Pietrzak**
Cumulative level distributions of orchestra sound on stage
- 18.10 **Ewelina Kwiatkowska**
Modern technologies in design, construction and maintenance of railway turnouts with Under Sleepers Pads
- 18.10 **Józef Kotus, Andrzej Czyżewski, Bożena Kostek**
3D acoustic field intensity probe design and measurements
- 18.30 **Wiesław Fiebig**
Using of the energy from mechanical resonance
- 18.30 **Tadeusz Kamisiński, Adam Pilch, Jarosław Rubacha, Mirosław Rataj**
Simulation of acoustic load on the filter of the wide field instrument of the ATHENA space mission during launch
- 19.30 – 20.30 Kolacja • Dinner
- 21.00 – 21.20 Nieszpory gregoriańskie – koncert przy świecach chóru Schola Cantorum Gymevensis w Kaplicy Zamkowej •
Gregorian Vespers – concert of the Schola Cantorum Gymevensis in the Castle Chapel, in candlelight

7.00 – 9.00 Śniadanie • Breakfast

9.00 – 11.00 Referaty plenarne • Plenary papers

Sala A • Room A

Chair **Antoni Śliwiński**

9.00 **Christian Giguère**

Auditory perception and speech communication with hearing protective devices

9.30 **Adamczyk Jan, Tadeusz Uhl, Lesław Stryczniewicz**

Innowacyjne rozwiązania ograniczania hałasu generowanego przez transport szynowy

10.00 **Stanislav Žiaran, Ondrej Chlebo**

Noise control transmission methods of the combustion engine by means of reduction of the vibration

10.30 **Jan Kiciński**

Modern methods for analysis of non-linear vibration illustrated by the case of low-power facilities

11.00 **Dariusz Pleban**

Noise and infrasonic noise at workplaces in a wind farm

11.30 **Martin Liedtke**

The new Personal Protective Equipment (EU) Regulation 2016/425

12.00 – 12.30 **Uroczyste zamknięcie Konferencji • Closing ceremony**

13.00 **Obiad • Lunch**

*Konferencja poświęcona pamięci prof. zw. dr.hab. inż. Zbigniewa Witolda Engela
w 3. rocznicę śmierci*

*Prof. Zbigniew Witold Engel, Ph.D. (Eng.), D.Sc. (Eng.) memorial conference
in the 3rd anniversary of his death*

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