

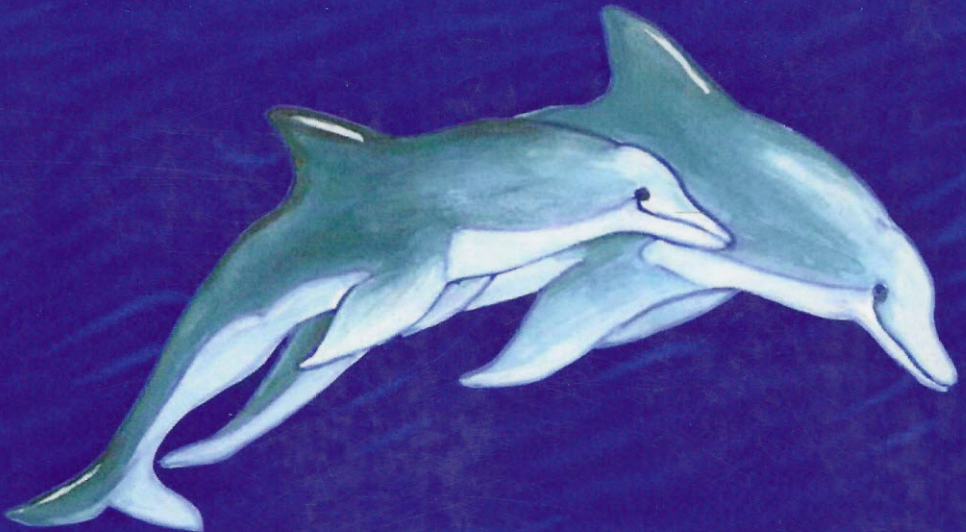
ISSN 1642-1817

# HYDROACOUSTICS

**Volume 14**  
**Annual Journal**



**European Acoustics Association**  
**Polish Acoustical Society - Gdańsk Division**



**Gdańsk 2011**



Polish Acoustical Society – Gdańsk Division

---

ISSN 1642-1817

# **HYDROACOUSTICS**

**Volume 14**

**Annual Journal**

Gdańsk 2011

**'Hydroacoustics' is the annual journal in which original papers, both theoretical and experimental, concerning problems in hydroacoustics and its application are published.**

### **EDITORIAL BOARD**

Grazyna Grelowska  
Eugeniusz Kozaczka  
Roman Salamon  
Andrzej Stepnowski

### **EDITORIAL STAFF**

Beata Rozanska

### **SCIENTIFIC COMMITTEE**

Prof. Eugeniusz Kozaczka	Poland
Prof. Leif Bjorno	Denmark
Prof. Philippe Blondel	United Kingdom
Prof. Grazyna Grelowska	Poland
Prof. Zygmunt Klusek	Poland
Prof. Tim Leighton	United Kingdom
Prof. Andrzej Nowicki	Poland
Prof. Roman Salamon	Poland
Prof. Andrey Serebryany	Russia
Prof. Jean-Pierre Sessarego	France
Prof. Andrzej Stepnowski	Poland
Prof. Michael Taurodakis	Greece

**Edition co-sponsored by Ministry of Science and Higher Education**

### **PUBLISHER**

Polish Acoustical Society – Gdansk Division  
11/12, G. Narutowicza St., 80-233 Gdansk, Poland  
Phone: (+48 58) 626 28 72, Fax: (+48 58) 625 48 46  
e-mail: [g.grelowska@amw.gdynia.pl](mailto:g.grelowska@amw.gdynia.pl)

## CONTENTS

<b>A. Baranowska</b>	
Numerical modeling of the nonlinear wave propagation in a bubble layer .....	9
<b>J. Bielański</b>	
Description of the hydrodynamic pressure field function around the ship hull .....	17
<b>K. Czarnecki, M. Moszynski, A. Chybicki</b>	
Using phase of short-term Fourier transform for evaluation of spectrogram performance.....	23
<b>A. Dragan, Z. Klusek, B. Swerpel</b>	
Passive acoustic detection and observations of wind-wave breaking processes.....	29
<b>A. Elminowicz, L. Zajączkowski</b>	
Application of DDS and magnetic barrier cooperating with acoustic barriers and tethered sonobuoys for harbour and anchorage underwater protection.....	39
<b>I. Gloza, K. Buszman</b>	
The multi-influence passive module for underwater environment monitoring.....	47
<b>I. Gloza, S. J. Malinowski, B. Marchalewski, J. Dobrzeński</b>	
The old and new procedures for the investigation of underwater signatures .....	55
<b>J. Idczak, N. Gorska, B. Arciszewski</b>	
Study of swimbladder morphometry of baltic herring and sprat (development of measurement methodology) .....	61
<b>T. Janowski, E. Porosińska</b>	
Target tracking using multiple passive sonars.....	69
<b>Z. Klusek</b>	
Ambient sea noise in the Baltic Sea – review of investigations.....	75
<b>Z. Klusek, A. Elminowicz, P. Majewski, A. Dragan</b>	
System for bistatic measurements of reverberations in the shallow sea area.....	83
<b>I. Kocharńska, H. Lasota</b>	
Application of ofdm technique to underwater acoustic data transmission.....	91
<b>E. Kruglenko, B. Gambin</b>	
Some aspects of numerical modeling of temperature increase due to ultrasound beam irradiation of rat liver.....	99
<b>H. Lasota</b>	
Action-reaction based synthesis of acoustic wavefield equations.....	111

---

<b>H. Lasota, I. Kochańska</b>	
Transmission parameters of underwater communication channels.....	119
<b>K. Listewnik</b>	
Experimental investigation of hydroacoustic multi-sensor array in water tank.....	127
<b>Z. Łubniewski</b>	
Seafloor characterisation using multibeam data: sonar image properties, seabed surface properties and echo properties .....	135
<b>A. Makar</b>	
Modeling of sea bottom using uniform rectangular Bézier pieces.....	143
<b>A. Makar</b>	
Modeling of vertical distribution of sound speed in water using rational Bézier curves .....	149
<b>J. Marszał, R. Salamon, K. Zachariasz, A. Schmidt</b>	
Doppler effect in the cw fm sonar .....	157
<b>M. Moszynski, W. Lis</b>	
A spice equivalent circuit for modeling the performance of dual frequency echo-sounder .....	165
<b>J. Niebergal, A. Zielinski, K. Caputa</b>	
From deformable mirror pointing at sky to underwater acoustics .....	171
<b>A. Perelomova, W. Pelc-Garska</b>	
Efficiency of acoustic heating in the Maxwell fluid .....	181
<b>A. Perelomova, P. Wojda</b>	
Unusual streaming in chemically reacting gases.....	189
<b>R. Salamon, J. Marszał, J. Schmidt, M. Rudnicki</b>	
Silent sonar with matched filtration .....	199
<b>V. Shchurov, V. Kuleshov, A. Cherkasov</b>	
Vortex features of acoustic intensity vector in the shallow water.....	209
<b>M. Szczegielniak</b>	
Motion compensation in stripmap SAS systems .....	217
<b>J. Szczucka</b>	
Noise of diving arctic birds .....	229
<b>J. Tęgowski, I. Ostrovsky, M. Zamaryka</b>	
Use of the Hilbert-Huang Transform for characterization of gassy sediments in Eckernförde Bay .....	237

**J. Wiciak**

Structural acoustic control of a one side loaded circular plate  
with piezoelectric actuators ..... 245

**J. Wojcik, J. Litniewski, A. Nowicki, B. Gambin**

Applying crystallography in analysis of trabecular bone backscatter ..... 255

**A. Zak**

Continuous wavelet transform in hydroacoustics signals analysis..... 267

Index of Authors ..... 275