

## In Memoriam

### Professor Grażyna Grelowska



1955 – 2022

We write these words with great sadness and regret, feelings caused by the loss of such a special person as Professor Grażyna Grelowska was. Our memories and thanks for the gift of acquaintance, friendship, and the possibility of working together provide evidence of that what united us and made us focus on the issues of science and the effort to explore the surrounding world, and more specifically – the sea depths and the sound propagating in water, acoustics, and hydroacoustics.

Professor Grażyna Grelowska was professionally associated with the Polish Naval Academy (PNA) “Heroes of Westerplatte” in Gdynia and the Gdańsk University of Technology. At the Naval Academy, she served as vice-rector for science and director of the Hydroacoustics Institute at the Faculty of Navigation and Naval Weapons. She headed the Department of Hydromechanics and Hydroacoustics at the Faculty of Ocean Engineering and Ship Technology of the Gdańsk University of Technology. She was a member of the Senate of the Polish Naval Academy, and also participated in the scientific councils of other universities and institutes. Both the interests and scientific achievements of Professor Grelowska concerned the application of acoustic methods in the research of the marine environment; the area of Her activity also included research for the navy and merchant navy needs, Border Guard, and environmental protection.

The education and the path of scientific development of Professor Grelowska were related to technical

sciences. She started at the Gdańsk University of Technology, where in 1978 she obtained a master’s degree in engineering at the Faculty of Electronics, specializing in electronic equipment. In 1990 at the Military University of Technology, Faculty of Chemistry and Technical Physics, she received PhD in technical sciences (the specialization of materials engineering) with honors, and in 2002 at the Institute of Oceanology of the Polish Academy of Sciences in Sopot, she received the degree of habilitated doctor in the specialization of oceanology. The culmination of the research work was the title of professor of technical sciences, awarded by the President of the Republic of Poland in 2017. It is a beautiful, impressive card of strenuous and fruitful scientific work, daily effort, and sacrifice.

From the beginning of her rich scientific career, Professor Grelowska was passionate about marine research. At the turn of 1978 and 1979, she took part in a research cruise to Antarctica on the RV “Professor Siedlecki”. In addition, while working at the Naval Academy and the Gdańsk University of Technology, she organized numerous research cruises in the waters of the Baltic and the North Seas, measuring the parameters of sea water and the structure of the seabed using non-linear acoustics.

An important area of Professor Grażyna Grelowska’s scientific and social activity was a membership in scientific societies, organizations, institutions, and scientific consortia. She was a member of the Polish

Acoustical Society since 1986, a member of the European Acoustics Association since 1998, and a member of the Marine Research Committee of the Polish Academy of Sciences from 2007 to 2014. From 2011 to 2014, she served as the vice-chairwoman of the Acoustics Committee of the Polish Academy of Sciences and the chairwoman of the Board of Directors of the Polish Acoustics Society. From 2012 to 2013, she was a member of the Awards Team of the Ministry of Science and Higher Education, and from 2013 to 2016, she represented Poland in the International Commission for Acoustics as a member of the Board. Since 2019, she was the chairwoman of the Committee on Acoustics of the Polish Academy of Sciences and an honorary member of the Polish Acoustical Society. Professor Grelowska actively participated in the editorial board of scientific journals. She served as the chairwoman of the Editorial Committee of Hydroacoustics, the vice-chairwoman of the Editorial Committee of the *Polish Naval Academy's Scientific Journals*, and the editor of the hydroacoustics section of *Archives of Acoustics*.

Among the scientific achievements of Prof. Grażyna Grelowska were her contribution to the development of nonlinear hydroacoustics. In particular, there should be mentioned:

- development of the theory of wave propagation of finite amplitude in sea with low salinity,
- determination of the non-linear B/A parameter for the southern Baltic using thermodynamic and acoustic methods,
- broadening the knowledge about the phenomenon of nonlinear interactions in the near field of multi-element sources radiating high intensity waves, and
- carrying out original studies of the structure of bottom sediments in the Gulf of Gdańsk.

We are honored and privileged to have spent part of our lives with Professor Grelowska, a wonderful person and friend. In the last words of this farewell, we would like to thank Her for all the moments spent working together at the Polish Naval Academy and the Gdańsk University of Technology. She contributed so much good to the life of our academic communities. We would like to thank Her cordially for this.

We wish You a peaceful watch Dear Grażyna, Madam Professor! The memory of You and respect for You will remain with us forever.

Professor Eugeniusz Kozaczka, PhD, DSc, Eng.  
Rear Admiral (Ret.) Czesław Dyrz, PhD, Eng.