

## **LAUDATION**

### **Prof. Natalia Sobczak**

*Corresponding Member  
of the Polish Academy of  
Sciences*

*Vice-President  
of the Polish Academy of  
Sciences*



Professor Natalia Sobczak was born on 21 April 1956 in Dzhambul, Kazakhstan. She grew up alongside her elder sister, with whom she maintains a warm, unbreakable bond to this day. At the age of just sixteen, she began her studies at the Leningrad Polytechnic Institute – now Peter the Great St. Petersburg Polytechnic University, where she met Jerzy Sobczak, the man who would become the love of her life and her husband.

That love came at a price. In the Soviet Union, marriage to a foreign national was regarded as an act of disloyalty to the state. For over two years, she was unable to leave the USSR, while her husband remained in Poland with their young daughter. She endured that separation and never allowed it to break her. When she was finally free to leave, she brought with her a determination that would become the hallmark of her life and work.

Together with her husband, she raised two remarkable daughters. The elder daughter, holding a doctorate in political sciences, works in European institutions. The younger, a doctor of medical sciences with an additional degree in biotechnology, found her true calling working with children as a paediatrician and neonatologist. Professor Sobczak is immensely proud of her three wonderful grandchildren – ambitious and equally hungry for knowledge.



There are scientists who study the world. And there are those who build the tools through which science is able to move forward.

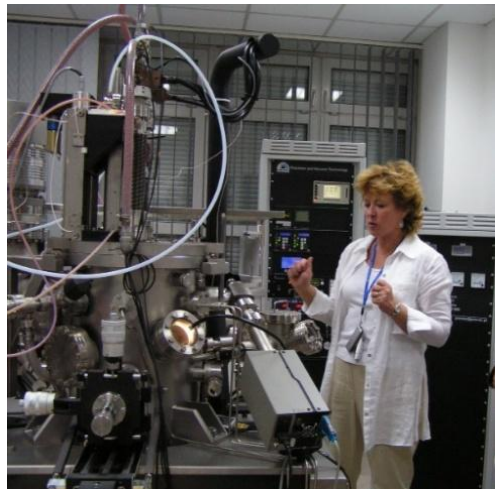
Professor Natalia Sobczak belongs to the second, rarer category.

And in her case – to an even rarer one: she has created not only the tools, but an entire school of science that uses those tools to make discoveries.

She obtained her Master's and Doctoral degrees at the Leningrad Polytechnic in 1978 and 1984, respectively. In 1985 she joined the Foundry Research Institute in Kraków, where over 34 years she established the world's first Centre for High-Temperature Research dedicated to the methodology and practice of liquid metal engineering. She completed her habilitation at the Institute of Metallurgy and Materials Science Polish Academy of Sciences (IMMS PAS) in 2005 and received the title of Professor in 2012.

Since 2019 she has led the Laboratory of Theory of Metallurgical Processes at IMMS PAS, while also collaborating with the Liquid Metal Engineering Laboratory co-founded by IMMS PAS and the Faculty of Foundry Engineering at AGH University of Kraków – a place that continues and develops her vision of research into the secrets of metals in the liquid state.

Her domain is a world that most people perceive merely as the glow of molten metal. Professor Sobczak has asked the fundamental questions:



What happens to a metal at high temperature when it comes into contact with another substance? When does it wet? When does it repel? When does it react and why?

The answers to these questions determine the safety of nuclear reactors, the durability of aircraft turbine blades, and the biocompatibility of medical implants.

When the tools were lacking — she built them herself. She designed and constructed six unique experimental platforms, each protected by a patent, with no commercial equivalent anywhere in the world. One of them received the First Prize of the Polish Ministry of Industry in the “Polish Product of the Future” competition; another was awarded the Gold Medal at the Poznan International Trade Fair. Data obtained on her apparatus have been incorporated into the Smithsonian/NASA Astrophysics Data System and are recognised as *reference data* on a global scale.



Japan holds a special place in her scientific journey. A grant from the *Japan Society for the Promotion of Science* in 2000 opened the doors of Hokkaido University to her. Even before her habilitation, she won a competitive appointment as *visiting professor* at the *Joining and Welding Research Institute* at Osaka University – one of the world’s foremost centres for research on high-temperature wettability and materials joining. She

collaborated with Professors Nogi, Fujii and Matsumoto, resulting in joint publications and a year-long research contract funded by the NEDO agency. Japan – its culture of precision, beauty and focused attention – has remained close to her heart ever since. Her office in the Palace of Culture and Science is filled with keepsakes from that time, and Japanese fans – masterworks of traditional craft – are a particular love of hers.

Japan is but one chapter in her international map of activity. A postdoctoral fellowship at the *University of Wisconsin-Milwaukee*, research at *Lawrence Berkeley National Laboratory*, collaboration with CNR in Italy, IFW Dresden, *NASA Glenn Research Center*, the *University of Central Florida*,

partnerships with the Bulgarian and Ukrainian Academies of Sciences, a project with the European Space Agency (ESA), membership of the Steering Committee of the HORIZON2020 AMADEUS project, grants from the Polish-American Maria Skłodowska-Curie Foundation and the United Nations.

She is a co-founder of the International Committee on *High Temperature Capillarity* (since 1994), Chair of the Working Group on *Cast Metal Matrix Composites* in the *World Foundry Organization* (since 2001), twice a Representative of Poland on the *FEMS Executive Committee*, and a member of the editorial boards of four Springer journals. Thanks to her, Poland is a full and recognised participant in the global community of liquid metal research.

Professor Sobczak's record includes: over 400 publications, 19 patents, more than 4,100 citations, an h-index of 31, annual inclusion in the World's Top 2% Scientists list, 38 awards and distinctions – among them the *FOSECO Golden Cup Award*, awards from the *American Vacuum Society* and *ASM International*, the Scientific



Award of the Fourth Division of Technical Sciences of the Polish Academy of Sciences, and gold medals from numerous exhibitions and trade fairs. She is a recipient of the Knight's Cross of the Order of Polonia Restituta.

Since 2022 – Corresponding Member of the Polish Academy of Sciences.

Since 2023 – Vice-President and Member of the Presidium of the Polish Academy of Sciences.

Since 2024 – Member of the Polish Academy of Engineering.

She chairs the National Committee for Cooperation with the *Scholars at Risk* Network, defending scientists persecuted for their work. This speaks volumes about her: that science is for her not merely a profession, but a value worth protecting.

Professor Natalia Sobczak has shown that one can come to Poland from the outside and become one of the pillars of its science; that one can build a laboratory from scratch and have its data cited by researchers from NASA and Japan; that one can be, at one and the same time, an experimentalist, an instrument builder, a methodological authority and a mentor to generations of scientists.

And above all – that one can work with such energy and passion that seventy years of life feel like forty.



Today we celebrate – because there is every reason to.

Because Professor Sobczak deserves it.

Because we, who have the privilege of working alongside her, want to say this clearly and aloud.

And Professor Sobczak – as always – will say just one thing:

*“Ms Joanna, let’s get to work!”*

And she will be right. Because our work continues.

*Laudation delivered by:*

Joanna Wojewoda-Budka, DSc, PhD,  
Director of the Institute of Metallurgy and Materials Science  
Polish Academy of Sciences