

THE ROSES OF POLISH SCIENCE ARE ALREADY THERE, THEY JUST NEED TO BE NOTICE

A Polish Nobel Prize will not emerge from a single breakthrough discovery. It will be the result of a system that allows outstanding scientists to do their best work, says **Prof. Marek Konarzewski**, President of the Polish Academy of Sciences (PAS). In this interview, he discusses the Academy's new award, Poland's strongest areas of research, and why investment in science may soon become an economic necessity rather than a political choice.

You once said that a Polish Nobel Prize could arrive within the next decade. What would need to happen tomorrow for that to become a realistic possibility?

MAREK KONARZEWSKI: Nothing dramatic. Nobel Prizes are the culmination of long-term processes. Before we can seriously think about achievements on that scale, we need to ensure that our best researchers have access to the resources, infrastructure and working conditions required to compete at the highest international level.

Poland has produced many Nobel laureates, but almost none received the prize for work carried out in Poland.

Even in the case of Marie Skłodowska-Curie, the decisive work was done in Paris. Of course, there are scientists of Polish origin whom we are extremely proud of. Frank Wilczek is an excellent example, both as a physicist and as a science communicator. Victor

Ambros recently visited Poland and accepted Polish citizenship. We gladly celebrate such connections, but that is not really what this discussion is about.

The issue is not whether a particular individual wins a Nobel Prize. The more important question is whether Poland can build a scientific environment capable of producing achievements on that scale. Individual laureates naturally become symbols, but from the perspective of someone responsible for a scientific institution, creating the conditions that make such success possible is far more important than celebrating a single future winner.

Exceptional talent matters, but talent alone is rarely enough.

Where do you see Poland's strongest areas of scientific excellence today?

For many years, Poland has been particularly strong in fields related to astronomy. That includes astrophysics, particle physics with strong links to astronomy,



CEZARY PIWOWARSKI, PAS

Prof. Marek Konarzewski

A biologist, researcher, and science communicator, he is a faculty member at the University of Białystok, a corresponding member of the Polish Academy of Sciences (PAS), and, since 2023, president of the Polish Academy of Sciences. His research lies at the intersection of ecology, evolutionary biology, physiology, and the evolution of animals. He is also the author of the popular science book *Na początku był głód*.

and several branches of mathematics that support this research. These are areas where Poland can genuinely aspire to compete at the level associated with Nobel-calibre discoveries.

Another major strength is chemistry, particularly at the intersection of chemistry and physics. We have several internationally recognised teams producing research of the highest quality in these fields.

Where did the idea for the new PAN award come from?

It emerged from numerous conversations held at different levels, including discussions with government officials. There was a growing sense that identifying researchers with exceptional potential could be inspiring not only for those individuals themselves but also for the wider scientific community.

I often speak about the challenges facing Polish science, and those challenges are real. At the same time, I reject the notion that Polish science is somehow in decline or falling apart. That is simply not true. We have made enormous progress. The fact that we are now discussing a Nobel Prize in a Polish context shows how much our ambitions have evolved over the past decade or so.

Nobel Prizes do not appear out of nowhere. They are the product of long-term development. When you look at the careers of Nobel laureates around the world, you see that their success rests not only on talent but also on institutions, research communities and years of growing international recognition. There are international awards that are often regarded as indicators that someone is approaching Nobel-level standing. The Wolf Prize is one example.

Poland already has the Foundation for Polish Science Prize, often referred to as the “Polish Nobel.” How will the PAS award differ?

The two awards are based on different ideas. The Foundation for Polish Science Prize recognises achievements and lifetime accomplishments. Our objective is different. We are less interested in rewarding an entire career and more interested in identifying future potential.

Some names will undoubtedly appear in discussions about both awards because the pool of truly exceptional researchers in Poland is not unlimited. That is perfectly natural.

Let us imagine the best-case scenario. Someone receives the PAS award. What changes for that person?

I hope it improves their ability to secure future grants, awards and research funding. High-level science cannot be conducted without substantial financial support.

We also want to give recipients greater freedom to focus on research rather than constantly dealing with the practical challenges of running a scientific career. The reality is that scientists in Poland remain underpaid. Too much time and energy is spent securing resources and managing everyday constraints when those efforts could be devoted to research itself.

Will the award be limited to researchers institutionally based in Poland? Many outstanding Polish scientists work abroad.

That is not an easy distinction to draw. In the natural sciences, very few successful researchers have spent their entire careers exclusively in Poland. Most have international experience or maintain active collaborations with institutions abroad.

Science is fundamentally international. The distinction between Polish science and foreign science is largely artificial. What ultimately matters is the quality of the work being done. At the same time, we want the core research infrastructure, the laboratories, the teams and the most important scientific achievements to be based here in Poland.

Is the award also intended to strengthen the case for greater investment in science?

Certainly. We want to demonstrate that excellent science is already being conducted in Poland. The conversation should not focus exclusively on underfunding, even though underfunding remains a serious problem.

The message is that Polish researchers are producing world-class results despite limited resources. If the system receives stronger support, the results could be even better. I hope the award becomes one of the arguments used in that discussion.

At the same time, it is important to be clear about what this award is and is not. It is not a mechanism for supporting the entire research system. That requires other instruments, including increased funding for the National Science Centre, greater national investment in research and development, and better salaries for scientists.

The purpose of this award is different. We want to identify and highlight researchers and teams that already belong to the highest international tier and provide them with additional visibility and support.

So the goal is to identify the very best rather than strengthen the scientific community as a whole?

This is intended to be an award for the very top tier of researchers rather than for the average performer. If it helps someone secure major grants, build a stronger research group, increase their international visibility

or achieve a breakthrough that might otherwise have remained out of reach, then it will have fulfilled its purpose.

Is the award designed to recognise existing scientific stars or to help create future ones?

Primarily the latter. If we are thinking in terms of a ten-year horizon, we should focus on researchers who are already on a very promising trajectory and who have the potential to make major advances in the years ahead.

I am particularly interested in scientists who have reached the stage where it is becoming clear that their work is influencing the direction of their field. They are building research groups, developing distinctive programmes of research and attracting growing international attention.

Major international awards rarely arrive without warning. They are usually preceded by a series of signals: influential publications, increasing recognition, invitations from leading institutions, prestigious grants and other distinctions. The challenge is identifying those signals early enough.

If this award is to make a meaningful difference, it should support researchers who are still in a phase of rapid development and for whom additional resources could genuinely accelerate their progress.

Are we talking about promising young researchers or more established scientists?

That depends on the discipline because career trajectories vary considerably across fields. In general, however, we are thinking about researchers who have already passed the earliest stages of their careers. They have their own teams, laboratories and research programmes, and they are becoming increasingly visible internationally.

At that point, what matters is no longer a single successful paper but a sustained pattern of achievement. You can see the difference between someone who happened to publish one excellent study and someone who is building a lasting and influential body of work.

Many people in Poland believe that the country's science system is inherently provincial and will always lag behind the leading scientific nations.

I understand where that frustration comes from, but sometimes we inadvertently undermine ourselves. If the public conversation consists entirely of complaints, it becomes easier for decision-makers to conclude that the situation is hopeless and not worth investing in.

We should also talk about what has already been achieved with the resources available. A stronger

argument for investment is not that science is failing. A stronger argument is that science is succeeding despite difficult conditions and could achieve even more with greater support.

Yet when people ask why Polish universities perform poorly in global rankings, the answer is usually simple: there is not enough money.

And that answer is largely correct. If you add together all the funding devoted to science in Poland, it amounts to the budget of a single top-tier American university. The disparity is enormous.

What is remarkable, however, is that many Polish institutes and research groups perform extremely well compared with counterparts in countries such as Germany or the United Kingdom when one considers the resources available to them. Judged against the scale of investment, their results are often far stronger than people realise.

Some critics argued that the new award addresses the wrong problem. They say Poland should first fix the funding of basic research before creating prestigious prizes.

I do not agree. Despite the financial challenges, Polish science has reached a level of maturity where initiatives like this make sense.

We are not trying to create excellence where none exists. Excellence already exists. Outstanding research groups are already operating in Poland and producing internationally recognised work. The challenge now is to recognise those achievements, strengthen them and make them more visible around the world.

What do you see as the most realistic scenario for Polish science over the next decade?

I suspect that within a few years Poland will begin to encounter the limits of its current economic model. It will become increasingly clear that long-term growth cannot be sustained without substantial investment in science, technology and innovation.

Major political decisions in Poland are often made only when circumstances leave little alternative. I fear that science may follow a similar path. At the same time, however, there is growing recognition that the country needs its own technologies and expertise. The obvious question is where those capabilities are supposed to come from. The answer is science.

Over the past few years, we have discovered that Poland already possesses far more technological know-how than many people realise. The problem is not a lack of ideas, talent or technology. The problem is a lack of confidence in our ability to use those resources and build upon them. I believe that confidence is gradually beginning to grow. ■