Engineering Transactions, **71**(1): 141–156, 2023, doi: 10.24423/EngTrans.3142.20230330
Institute of Fundamental Technological Research Polish Academy of Sciences (IPPT PAN)
Université de Lorraine • Poznan University of Technology

In Memoriam

Professor Ryszard Bolesław Pęcherski

1949 – 2022

Ryszard Bolesław Pęcherski was born on March 15, 1949 in Stopnica closely to the town Busko-Zdrój in Poland and passed away in Warsaw on December 22, 2022.

He graduated from Gdansk University of Technology in 1973 (the thesis: "Axioms of constitutive equations of continuum mechanics" prepared under the supervision of prof. Józef Więckowski). After a year, in October of 1974, he began doctoral studies at the Institute of Fundamental Technological Research of the Polish Academy of Sciences (IPPT PAN) in Warsaw, which he completed in 1978. He obtained a PhD degree in technical sciences in the discipline of mechanics after defending the thesis entitled: "Theoretical description of the effect of neutron irradiation on the viscoplastic properties of mild steel". The supervisor of this thesis was prof. Piotr Perzyna. Shortly after his doctoral studies, in 1979 as assistant professor he went abroad for a one-year scholarship (Japan Society for Promotion of Sciences) at the Tohoku University in Sandai, Japan. In the years 1983–1987 he worked as a scholarship recipient of the Alexander von Humboldt Foundation at the University of Hanover in the Institut für Baumechanik und Numerische Mechanik with prof. Erwin Stein and PhD student Rolf Lammering and as a six months scholarship recipient of the DAAD in Technische Hochschule in Holzminden with prof. Jürgen Paulun. Before defending his dissertation, he was employed at IPPT PAN first in the Laboratory of Theory of Viscoplasticity in the Department of Mechanics of Continuum, and then in the Division of Theory of Inelastic Materials. In 1998, he completed his Habilitation thesis entitled "Description of plastic deformation of metals with the effects of micro-shear bands", for which he received a degree of habilitated doctor in mechanics. The title of Associate Professor was conferred on him in 1999. In 2000,

he was employed in the Department of Strength of Materials of the Institute of Structural Mechanics at the Cracow University of Technology. He gave lectures on the subject Strength of Materials. In 2007, he received the title of professor and in the same year he finished his work at the Cracow University of Technology. He continued his scientific and didactic activity at the Department of Strength and Fatigue of Materials and Structures of the AGH University of Science and Technology in Cracow.

In 2009, Prof. Ryszard Pęcherski was the head of the Laboratory of Applied Plasticity at the Department of Mechanics of Materials IPPT PAN, and in years 2017–2020 he was the head of the Department of Theory of Continuous Media and Nanostructures, IPPT PAN. In years 2020–2022 he was the deputy manager in the Department of Theory of Continuous Media and Nanostructures and leader of the Division of Polymer Physics.

The Professor Pęcherski scientific activity concerned various aspects of the mechanics of materials. At the beginning he was interested mainly in the plasticity of metals, especially phenomena of large plastic deformations, viscoplasticity and the effect of shear bands. During a scholarship in Japan under the supervision of prof. Takeo Yokobori, Prof. Pęcherski studied the relationship between microscopic observations of plastic deformation processes and their macroscopic mathematical description, which allowed him to formulate a conclusion to consider the need for inclusion of plastic spin in constitutive equations for large plastic deformations. He continued this subject at the scholarship in Hannover under the supervision of prof. Jürgen E. Paulun.

Over time, the subject of research has been extended to the mechanics of anisotropic, nanostructures, cellular and composite materials. He was interested in the problems of energy limit state criteria for anisotropic materials with an asymmetric elastic range, material effort hypotheses for cellular materials, flexible adhesive joints, multi-scale modelling, mechanics of ceramic-metal composites. He was the principal investigator of many research projects and the author of several dozen scientific publications. One of his last works is the monograph *Viscoplastic Flow in Solids Produced by Shear Banding* published by Wiley Publishing House just a few months before his death. Since 2007 he had scientific cooperation with prof. Alexis Rusinek in "l'École Nationale des Ingénieurs de Metz" and prof. Ramón Zaera Polo from the Department of Continuum Mechanics and Structural Analysis of University Carlos III of Madrid. He was also involved in an educational activity as supervisor of nine Ph.D. students in Poland and was invited as a visiting professor by l'École Nationale des Ingénieurs de Metz in France, by University Carlos III of Madrid in Spain, as well as universities in Poland. He co-organised and participated in many congresses, conferences and symposiums in different countries, including France, USA, Japan, Canada, Spain and also in Poland.

Professor Ryszard Pęcherski was very active in the Polish and European scientific community. He was the deputy secretary of the Polish Society of Theoretical and Applied Mechanics (PTMTS), a member of the Polish Society of Materials Science and Geselschaft für Angewandte Mathematik und Mechanik (GAMM). Professor was involved in the activities of several sections of the Committee of Mechanics of the Polish Academy of Sciences and the Committee of Metallurgy of the Polish Academy of Sciences. He was a member of the Scientific Council of IPPT PAN, as well as the chairman of the IPPT PAN Library Committee and in years 2011–2015 he served as editor of the journal *Engineering Transactions* originally published by IPPT PAN, and then, by his initiative, with Poznan University of Technology and l'École Nationale des Ingénieurs de Metz. He was also a member of the Scientific Council of the journal *Mechanics* quarterly published by AGH and KM PAN. He participated in the organization of many conferences and scientific meetings such as international SolMech conference in 2012 and 2016, the international DynaMET workshops and the national OMIS and PLASTMET conferences. He established close and long-term contacts with foreign research centres, collaborating with such units as the University of Carlos III of Madrid (Spain), l'École Nationale des Ingénieurs de Metz (France), the International Centre for Mechanical Studies in Udine (Italy) or the Summer School of Mechanics in Agadir (Morocco).

Outstanding academic merits of Professor Ryszard Pęcherski is to remind the international scientific community of the achievements of the two scientists of the Polish school of mechanics – Maksymilian Tytus Huber and Włodzimierz Burzyński. On the initiative of Professor Pęcherski, Anna Stręk translated into English the most important works of these two excellent scientists, which were then publicly available in journals published by IPPT. As a result, foreign scholars are becoming increasingly aware of Huber's achievements. Huber's works remained largely unknown or misunderstood until they were translated. Also thanks to the determination of Prof. Ryszard Pęcherski, the works of Huber's student, Włodzimierz Burzyński, have become more widely known, they preceded by almost a quarter of a century the much more widespread, yet less general and less physically motivated proposal of Drucker and Prager.

Together with prof. Zbigniew Olesiak, he prepared a biography of Burzyński, which was published in the PTMTS Bulletin. He was engaged in research until the end of his life.

Zdzisław Nowak, Katarzyna Kowalczyk-Gajewska, Marcin Nowak
Institute of Fundamental Technological Research, Polish Academy of Sciences,
Warsaw, Poland

Paweł Szeptyński
Cracow University of Technology, Cracow, Poland

Ryszard Pęcherski as he was remembered by:

Prof. Tadeusz Burczyński (Director of Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland):

With great pain and regret we said goodbye to our colleague and friend, an outstanding researcher at IPPT PAN, Professor Ryszard Pęcherski, PhD.

The main scientific area of his interest was related to solid mechanics. Recently, he has been involved in modeling the formation of multimolecular structures and developing the physical basis of thermomechanical properties of engineering materials.

According to the Scopus database, Prof. Pęcherski was the author of over 60 original works printed in prestigious international journals and the author of the book entitled "Viscoplastic Flow in Solids Produced by Shear Banding", which was published in 2022 by Wiley Publishing House.

Professor Pęcherski always had a great need to share his knowledge with young people interested in studying and science. Hence, in addition to his work at IPPT PAN, he also worked as a professor at the Cracow University of Technology (Faculty of Civil Engineering) and at the AGH University of Science and Technology (Faculty of Mechanical Engineering and Robotics). Many students from both universities received internships at IPPT PAN under his guidance, and some of them continued their scientific work at the IPPT PAN. He promoted a total of eight PhDs in technical sciences.

He was the manager of many research projects. He also held many positions at IPPT PAN. Among other things, he was a head of the Laboratory and Research Department and a member of the Scientific Council of IPPT PAN; moreover he also organized many scientific conferences.

Professor Ryszard Pęcherski had many contacts abroad. He stayed for 2 years on a Humbolt scholarship at the Universität Hannover and held a one-year fellowship in Japan, he was also invited as a Visiting Professor at the Metz Polytechnic on several occasions.

Professor was a very active and committed researcher at IPPT PAN. We will miss him greatly.

We bid farewell to Professor Ryszard Pęcherski, a distinguished member of staff at IPPT PAN, a colleague and a friend, an open-minded, kind-hearted person, full of empathy and curiosity about life, and at the same time a man who consistently strove for self-improvement and development.

Prof. Janusz Badur (Institute of Fluid-Flow Machinery, Polish Academy of Sciences, Gdansk, Poland):

Professor Ryszard Pęcherski was a graduate of the Gdansk University of Technology, for many years he cooperated with the Institute of Fluid-Flow Ma-

chinery of the Polish Academy of Sciences in Gdansk, where he tirelessly supported our scientific community. Over the years he has been our devoted friend, scholar, enriching us with his creative ideas.

He was a person opened to new ideas, looking for new solutions, hence he often moved from place to place, looking for inspiring insights related to science. He visited Gdansk on many occasions. Wherever he was, he did the right things, we owe him a special good. Firstly, in the eighties and also later, he brought the achievements of three scientists out of oblivion, important for our Institute of Fluid-Flow Machinery PAS – they were Tytus Huber, Włodzimierz Burzyński and Robert Szewalski. They created the Lviv school of the theory of material effort.

First, Ryszard Pęcherski found Burzyński's son in Gdansk, and thanks to the materials received from him, he reconstructed, revalorized and developed his entire scientific legacy. Next, over the years of heavy work, Ryszard has become for us the most valuable renovator of the Polish school of science about the material effort, the renovator of the old Huber slogan – "strength so as to effort".

Thanks to his work, it gradually turned out that Professor Burzyński's energetic and multiparameter approach opens the way to the study of modern materials such as porous sinters. Ryszard's passion and research courage resulted in the creation of a large group of his students and associates, both in Warsaw and Cracow. I remember how proud he was that he also introduced the theory of material effort to the French ground. He also sowed on the fallow, our barren land of Gdansk. It is a pity that he will not see the harvest of his deeds interrupted by his death. Ryszard, we promise to develop your thought – the school of material effort – by sticking to the same spirit that filled your work! Rest in eternal peace.

Prof. Ramón Zaera Polo (University Carlos III of Madrid, Spain):

I will always remember his ability to enjoy life, his kindness and passionate dedication to science. A true gentleman. Rest in peace.

Prof. Tomasz Łodygowski (Poznan University of Technology, Poznan, Poland):

Ryszard in his presentations and mathematical formulations tried always to be as precise as possible. The theoretical achievements he usually supported by computations and both of them verified by laboratory experiments. He never forgot to recall and expose the impact of Polish scientists to the world treasure trove of knowledge. I will miss many topics with Ryszard.

Prof. George Z. Voyiadjis (Louisiana State University, Baton Rouge, USA):

We are sad to hear the passing away of our dear friend Professor Ryszard Pęcherski. His legacy and monumental work in modelling and characterization

of physical based plasticity will live on and grow through our community. He had a long and successful career in the field of mechanics of materials and localization. He embodied what it was to be an academic and even more and more importantly a superb human being. It was my honour to have known him all these years. He always carried himself with a zeal and zest for life and youthful spirit and charming disposition and a radiant smile. Rest in Peace our dear friend. Our deepest condolences to his family. He was a great scientist and individualist.

Teresa Frąś (Ph.D., Eng., Assoc. Prof., French-German Research Institute of Saint-Louis, Saint-Louis, France):

I met prof. Pęcherski, when I was a student attending his lectures on the theory of plasticity. Professor had a non-standard method for the final exams – instead of questioning students on the lectured material, he encouraged volunteers to present their own lectures on 'big topics'. He lent me a book filled with unfamiliar theorems and he walked me through them. I still recall my joy of discovering and a feeling of satisfaction accompanying an awaking understanding.

Professor and his doctoral students: Ania Stręk (left),
Teresa Frąś and Paweł Szeptyński, Metz, June 2011.

This one memory speaks a lot about prof. Pęcherski – an acknowledged researcher but also a great teacher of the kind heart, opened to work with young people; their friend but also a coach forming their first scientific steps. I owe him a lot, as he instilled in me a passion for research. Professor became the advisor of my doctoral thesis and further, my mentor and the counsellor to my own research questions. I miss him and the vivid conversations we used to have, filled with his wisdom, laced with his sparkling sense of humour.

Magistro meo gratiam habeo sempiternam.

Paweł Szeptyński (Ph.D., Eng., Cracow University of Technology, Cracow, Poland):

I remember well my conversations with Prof. Pęcherski as he was my supervisor during PhD studies. He had a great respect to my own opinions. Once, he let me write a single sentence – with which he strongly disagreed – in my PhD thesis, warning me, however, that he may declare "votum separatum", if this matter had been discussed during defence of the dissertations. Our conversations were not simply discussions on technical issues but rather friendly talks, as Professor was always willing to talk about topics which were often only slightly related to the matter – these were primarily history or more general principles of science. He was the person, who encouraged me to read Stephen Timoshenko's History of Strength of Materials. It was a great pleasure to listen to his memoirs regarding his travels, exotic cuisine etc. It was an unexpected and funny discovery, when I noticed that among multiple "theory" and "mechanics" book on the shelves in his room, there was also Parker's Wine Buyer's Guide. He was sincere and did not hesitate to talk even on very personal matters, both serious and humorous. I remember him telling me a story, when he during compulsory military training ran around with a machine gun as part of "a team on the attack" war game, which ultimately ended up with his ammunition belt being lost somewhere. As a supervisor, he was always keen on helping his PhD students, especially regarding organization and financial matters, employment etc.

Anna Stręk (Ph.D., Eng., Cracow University of Technology, Cracow, Poland):

I owe a lot to Professor Ryszard Pęcherski, both with regard to my scientific career choices and development as well as to many aspects of just understanding and enjoying life. I first met him in 2001, he was a lecturer in my study course of strength of materials at the Cracow University of Technology, where I studied construction in civil engineering. I quickly noticed that Professor had an extraordinary personality and wide interests very far from stiff frames of a boring scientist stereotype. This together with his friendliness towards students encouraged me to share my interests in linguistics with him, which resulted in starting our cooperation with the translation of M.T. Huber's works into English. Then followed his supervision of my master's and doctoral theses on mechanics of cellular materials. In the meantime there was also the translation of W. Burzyński's works. I admit with gratitude that, at some point, it was Professor Pęcherski who persuaded me to undertake the PhD studies and scientific career.

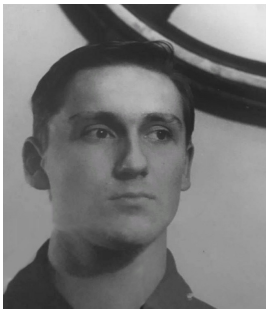
Of course, there were better and worse times in our cooperation; but, among so many recollections of Professor Pęcherski, in this short reminiscence, I would like to honor his memory, which is one of the brightest of all that I remember. Professor was the Chairman of the 40th Solid Mechanics Conference SolMech, which took place in 2016, in Warsaw. In addition to excellent lectures, the ju-

bilee was celebrated with an excellent piano concert at Chopin's manor house in Żelazowa Wola. Then, the participants of the conference met for a gala dinner in a nearby venue full of portraits of Chopin and the spirit of the age. I had the luck to sit at one table with Professor and with colleagues from Warsaw, Cracow and Madrid – we spent unforgettable time together, filled with festive mood. In our conversation serious scientific topics interweaved smoothly with memories of Fryderyk Chopin's Piano Competitions and discussions about best Spanish wine brands and football teams.

This is how I remember Professor Pęcherski: a man deeply devoted to traditions of Polish school of mechanics making efforts for it to shine to the world, and – at the same time – an open, light-hearted citizen of the world, enjoying the best.

Prof. Elżbieta Pieczyska (Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland):

Ryszard Bolesław Pęcherski grew up in a family of teachers and a fruit-grower's grandfather in Ponidzie, a fertile region in a center of Poland – became a citizen of the world already at a scout camp in England during communist time.



After graduating from the prestigious Tadeusz Kościuszko Secondary School he moved from the sunny Busko-Zdrój to the cold Baltic seaside, to study Ship Construction at the Gdansk University of Technology and complete several internships, e.g. in Denmark. Inspired by mechanics, he continued his education at the IPPT PAN Doctoral Studies in Warsaw where he defended his PhD (1973), later DSc (1998) and got the title of full Professor (2007).

He regularly presented his achievements at numerous national and international scientific conferences and gained more knowledge and contacts during long-term research programs in esteemed centers, such as receiving a JSPS scholarship in Sendai, Japan; a Humboldt scholarship in Hannover, Germany; among others. He passed on his knowledge to students at universities in Poland at the Cracow University of Technology, AGH University of Science and Technology, as well as in Germany, France, Spain, Italy, Morocco. He was the thesis supervisor for numerous BSc, MSc and PhD students and organized internships for them, caring not only for their education but also their well-being. The students did not only appreciate his great support, but also loved their Professor, and so did his beloved son Krzyś, his wife Agnieszka and grandchildren Wojtuś, Ola, Tomek, as well as Ewunia and Adaś. Ryszard left behind a number of interesting pieces of work, books, gave numerous lectures in various research centres in

Poland and other countries, organized many conferences, served as a member of various state and international scientific organizations, promoted nine PhD students and there are more coming up.

At the monument of Marshal Józef Piłsudski
in Sulejówek.

He was known not only for his sensitivity, kindness, but also for his great sense of humour. He used to say that the only thing he really knows something about was... wine, which he researched during his scientific programs in France, Italy, Germany, Japan, Spain, etc.

"Gone with the wind" is the title of the book he gifted me after my habilitation defence – and now it has gained another meaning. Due to his uniqueness ***Ryszard will stay in our memories forever.***

Prof. Guadalupe Vadillo (University Carlos III of Madrid, Leganés, Spain):

I was lucky to meet and work with Professor Ryszard Pęcherski. I will always remember him as a good, nice, kind and sensitive person, as well as being cheerful and loving life. His early and sudden departure leaves us with great sadness. We will miss you so much Ryszard.

Prof. Alexis Rusinek (University of Lorraine, Metz, France):

It is with great sadness that we remember the passing of Prof. Ryszard Pęcherski, a pioneering scientist who left an indelible mark on the fields of materials science, physics, and plasticity. Professor's dedication to his research and passion for teaching inspired countless students, colleagues, and friends, and his contributions to the scientific community will always be remembered.

As a leading expert in materials science, Ryszard was known for his innovative research in the field of plasticity, making ground breaking contributions to our understanding of the behaviour of materials. Ryszard was a prolific researcher, publishing numerous papers, books, the last one published few months ago, was presented at conferences around the world; Professor's work was widely recognized and respected by his peers.

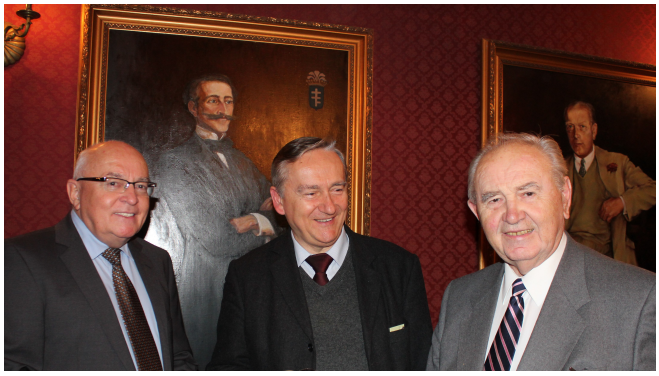
In addition to his research, Ryszard was a gifted teacher and mentor, always making complex scientific concepts accessible and engaging to his students, colleagues and friends. Professor Ryszard Pęcherski was passionate about encouraging the next generation of scientists and was a true ambassador for the field, inspiring countless young people to pursue careers in science.

His passing is a great loss to the scientific community, but his legacy will live on through the countless students, colleagues, and friends he inspired during his lifetime. He will always be remembered for his dedication to science, his passion for teaching, and his kind and generous spirit. Although he is no longer with us, his impact on the world of materials science, physics, and plasticity will never be forgotten.

Prof. Romana Ewa Śliwa (Rzeszow University of Technology, Rzeszow, Poland):

I met Professor Ryszard Pęcherski many years ago while participating in the first seminar entitled Integrated Studies of the Basics of Plastic Deformation of Metals (PLASTMET) organized on the initiative of the Committee on Mechanics (Section of Mechanics of Solid State) and the Committee of Metallurgy (Section of the Theory of Metal Forming Processes) of the Polish Academy of Sciences at the PAS centre in Mogilany. The idea of organizing joint activities, including conferences for better understanding and development of both scientific communities of mechanics and metallurgists, brought us together for years. Together we organized 12 editions of the PLASTMET conference, and in 2022 we began preparations for the 13th conference in November 2023. Recalling the jointly developed programs and then the conference time we spent together, I remember how much attention he paid to the level and content of scientific speeches in the halls of the Castle Museum in Łancut (Poland), but also to the role of meetings and non-scientific visits such as to the Museum of Industry. Professor Pęcherski took exceptional care to ensure that the presentations of papers resulted in genuine discussions and constructive substantive comments. He paid special attention to ensure that the atmosphere of the exchange of views took place in a friendly atmosphere, which undoubtedly served everyone, especially the younger generation of scientists. Ryszard had the gift of responding calmly in difficult situations, he knew how to appreciate and inspire. Thanks to these meetings, all the scientific contacts resulted in many joint scientific works,

PLASTMET 2008 from right Professor Ryszard Pęcherski, Andrzej Korbie, Romana Ewa Śliwa, Gwidon Szefer.



Professors Franciszek Grosman, Ryszard Pęcherski and Józef Zasadziński, the Museum of Industry, Łańcut, November 2013.

The chairperson of Session, PLASTMET Conference, Łańcut, November 2021.

publications, scientific and research projects, and this fact was and is very important to us.

We will continue unfinished joint work, research, projects, conferences, but he will be greatly, greatly missed...

Prof. Rolf Lammering (Helmut-Schmidt-Universität/Universität der Bundeswehr, Hamburg, Germany):

Ryszard Pęcherski and I met in the early 80s when he came to Hannover as a fellow of the Alexander von Humboldt Foundation, and I was an assistant at the Institute of Structural and Computational Mechanics there. Then, in 1986, I accepted Ryszard's invitation and visited IPPT in Warsaw. Numerous meetings in Poland and Germany followed and we not only worked together scientifically, but also spent free time together. Our scientific collaboration and our exchange beyond that were always very stimulating. Through Ryszard's broad knowledge of his native country, I learned a lot about Poland and its people, its history, and its culture. I miss Ryszard and will always remember him as a researcher with a thirst for knowledge, and a great and open-minded friend with a fine sense of humour.

Prof. Maria Henar Miguelez Garrido (University Carlos III of Madrid, Leganes, Spain):

I met Prof. Ryszard Pecherski 15 years ago during the periodic workshops organized by our colleagues working on material mechanics. Ryszard drew my attention as an extremely educated person, a perfect gentleman. He was an excellent scientist and we had the opportunity to discuss in further workshops and visits in our respective institutions, last time in Warsaw. I was shocked to hear the sad news, I will remember Ryszard as a deep thinker and a very fine person.

Prof. Wojciech Sumelka (Poznan University of Technology, Poznan, Poland):

In the person of Professor Ryszard Pęcherski, we have lost a great "friend" of science, a person who was always ready to discuss and a person who supported anyone who wanted to discover new ideas. Professor Pęcherski often liked to joke and used to say many accurate sentences... among others ... "It's hard to become a professor, but it's easy to be one"... but unfortunately he did not manage to prepare us for the moment when we would never meet again in the reality.

Dear Ryszard – rest in peace. Until we meet again!

Prof. Leszek Jarecki (a retired Prof., Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland):

Professor Ryszard Pęcherski was the head of the Department of Theory of Continuous Media and Nanostructures and the head of the Polymer Physic Lab-

oratory in this Department during my research work in the Laboratory over the last decade. When Professor Pęcherski became the research leader, the original research important for the knowledge on the fundamentals of polymer structure development and its technological applications was continued. He has also initiated in the Laboratory a new topic concerning formation of the polymer structures by additive manufacturing (AM) techniques, very fast developing last years. Basing on his academic educational activity He has brought PhD and master students to the Department involving them in the research on the structure and mechanical properties of polymers. The research continued with the involvement of Professor Pęcherski concerns also an actual topic in modelling of the development of polymorphic composition under various thermal conditions and tensile stress, important from its cognitive and technological meaning. I highly value also His friendly attitude to the research co-workers and activity in the organization of the scientific investigations.

Janina Ostrowska-Maciejewska (Ph.D., Eng., Assoc. Prof., Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland):

We all are deeply moved by the loss of Professor Ryszard Pęcherski who unexpectedly passed away in Warsaw, on December 22, 2022 at the age of 73. He was the scientific authority and teacher. Professor Pęcherski, after completed his study at the Technical University in Gdansk in 1973, joined the Institute of Fundamental Technological Research of the Polish Academy of Sciences as a postgraduate student. He was at the Department of the Theory of Inelastic Materials, headed by professor Piotr Perzyna. Quite soon he received the PhD and DSc degrees. He became a Professor in 2007.

Professor Pęcherski remained an active researcher until his death. He was open for a new activities and had many plans for the future.

Zdzisław Nowak (Ph.D., Assoc. Prof., Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland):

I met Prof. Ryszard Pęcherski for the first time when I was a PhD student while he was an assistant professor in Prof. Piotr Perzyna's Department of the Theory of Inelastic Material at the Institute of Fundamental Technological Research of the Polish Academy of Sciences. From the beginning, our scientific cooperation was focused on numerical simulations of inelastic deformations of metals with micro-shear bands effects. Our approach to mechanics resulted from contacts with Professors Piotr Perzyna, Tomasz Wierzbicki, Witold Kosiński, Paweł Dłużewski and Doctors Włodzimierz Wojno, Włodzimierz Abramowicz, as well as other colleagues from the IPPT PAN.

Professor Ryszard Pęcherski rediscovered the Burzyński yield condition in plasticity and proposed a modification of Perzyna's viscoplasticity to include

the micro-shear band effects. His papers were published in many international journals and he authored a book on the viscoplastic flow in solids produced by shear banding, Wiley 2023.

For many years, Prof. Pęcherski was a creative leader of our team, helping, discussing and supervising our work. He had a lot of patience when dealing with students. Besides science, he enjoyed literature, history and politics.

Ryszard was our good colleague and he is sorely missed by us. Alack and alas, I cannot say see you tomorrow.

Kinga Nalepka (Ph.D., Assoc. Prof., AGH University of Science and Technology in Cracow, Cracow, Poland):

In 2001 my and Professor's paths met when I started working as an assistant at the Chair of Strength of Materials at the Faculty of Civil Engineering of the Cracow University of Technology. I began research under his supervision aimed at formulating a doctoral dissertation. Professor Pęcherski was characterized by great openness, he was passionate about discovering the world through science. Therefore, when I decided to use quantum mechanics to identify the limit states of single crystals instead of solving the problems of coupling the dislocation system, twins, or shear bands with the mechanical response of metals, he had nothing against it. Simultaneous attendance at lectures at the Faculty of Chemistry of the Jagiellonian University enabled me to achieve the goal set in the doctoral dissertation, and also started a long-term friendship with Professor Piotr Petelentz. The defended thesis turned out to be so innovative that it was awarded the Individual Award of the Minister of Science and Higher Education. Professor Pęcherski deeply believed in people and was sometimes even completely involved in the currently considered scientific issue. Hence, when we later wrote another article on the strength of metal/ceramic transition layers, we continued the scientific discussion despite the announced fire drills. Only when the health and safety services started banging at the door, we decided to move to a slightly quieter cafe next door. The professor did not believe that the methodical derivation of the mechanics equations in an orderly environment was appropriate. He was much closer to the approach of Stefan Banach, who solved complex problems of functional analysis on napkins in a local bar. In addition to his scientific work, the professor was very fond of lectures with students. He systematically derived, important to the engineer, formulas of the strength of material, but his sense of humour made him sometimes include side plots. And so he told the students that when Adhemar de Saint Venant was analysing the state of stress and strain, he would take out a bottle of the best Bordeaux from the cellar and calmly start working for many hours. Professor Pęcherski, however, quickly gave up this additional information when he asked about the Saint Venat's principle during the exam, and the student replied – "wait, wait, that's how it was with

this Bordeaux". Anecdotes and a direct approach attracted students who willingly wrote their diploma theses under his supervision. The problems solved became the basis for later long-term friendships.

Eligiusz Postek (Ph.D., Assoc. Prof., Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland):

Professor Ryszard Pęcherski was an authority in the field of mechanics who was able to combine new concepts with older ones in his research. He conducted research on the theory of plasticity, conditions of plasticity, as well as analyzes of materials in the nanoscale. The latter seems to be the most inspiring, even if the results cannot currently be confirmed experimentally due to the limits of the measuring devices.

Ryszard willingly shared his experiences in friendly conversations. He told various anecdotal stories related to his professional life.

Although less known, I mention an exciting work that was the co-authorship of the translation into English of Prof. Huber's original work, "Specific work of strain as a measure of material effort" from Czasopismo Techniczne published in 1904 in Lwow. It allows now to refer to this work when writing about the Huber-Mises-Hencky criterion known in the literature as the von Mises criterion.

He left suddenly, leaving a number of unfinished works, which will hopefully be completed by his associates.

Prof. Katarzyna Kowalczyk-Gajewska (Institute of Fundamental Technological Research, Polish Academy of Sciences, Editor-in-Chief of *Engineering Transactions*, Warsaw, Poland):

I was very moved when I heard that Ryszard had passed away. My closer acquittance with then for me Professor Ryszard Pęcherski started over 20 years ago when he was assigned to be a reviewer of my PhD thesis done under the supervision of Prof. Wiktor Gambin at IPPT. His interest in this piece of my research work resulted in our continued scientific collaboration. I think that the greatest asset of Ryszard, besides the quality of his scientific work, was a great ability to see a potential in people as well as an easiness in establishing the links between them. In my case, he was always encouraging to take next steps in my scientific career, for example, when he proposed to take after him the role of the Editor-in-chief of Engineering Transactions. Also owing to him I started the long-term and fruitful collaboration with the group of Prof. Jose Rodriguez-Martinez and Guadalupe Vadillo from University Carlos III of Madrid.

Ryszard liked people and had a trust in them. In my opinion his legacy presents itself not only with numerous articles and books co-authored by him

Ryszard Pęcherski with Katarzyna Kowalczyk-Gajewska continued their discussion in the lobby, PLASTMET conference 2008.

by also with those which came or will come to scientific existence thanks to the people he brought to science or as a result of links between researchers which were initiated thanks to his open and kind personality.